

OOMBRA ARCHITECTS

OOMBRA ARCHITECTS, LLC.
PHILADELPHIA, PA
WWW.OOMBRA.COM
215.948.2564

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SCHEMATIC GRADING PLAN

C-3.0

SCALE : AS INDICATED

OMBRA PROJECT #

BRUSH PARK PROPERTIES, LLC
79 ALFRED STREET
DETROIT, MICHIGAN 48201
313.578.1200

OOMBRA ARCHITECTS, LLC.
PHILADELPHIA, PA
WWW.OOMBRA.COM
215.948.2564

THE HARMAN GROUP, INC.
900 WEST VALLEY FORGE ROAD
SUITE 200
KING OF PRUSSIA, PA 19406
610.337.3360

PEA INC.
45 WEST GRAND RIVER AVE
SUITE 501
DETROIT, MI 48226
313.769.5770

STRATEGIC ENERGY SOLUTIONS, INC.
4000 WEST ELEVEN MILE ROAD
BERKLEY, MI 48072
248.399.1900

OOMBRA ARCHITECTS, LLC.
PHILADELPHIA, PA
WWW.OOMBRA.COM
215.948.2564

SCALE: 1" = 10'

SCALE : AS INDICATED

OWNER

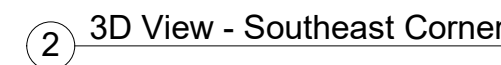
ARCHITECT

STRUCTURAL ENGINEER

LANDSCAPE & CIVIL ENGINEER

MEP ENGINEER

① 3D View - Northeast Corner



SCALE : AS INDICATED 4/21/2018 2:01:33 PM

QOMBRA PROJECT

2827 John R Street
Detroit, MI 48201

 $\pm 48^{\circ}0'$

QOMBRA PROJECT #

STRATEGIC ENERGY SOLUTIONS, INC
4000 WEST ELEVEN MILE ROAD
BERKLEY, MI 48072
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CODE & LIFE SAFETY

SCALE : AS INDICATED 4/21/2018 2:01:44 PM

③ X_LIFE SAFETY_LEVEL 3
1" = 20'-0"

① X LIFE SAFETY LEVEL 1
1" = 20'-0"

LEVEL 1

Legend:

- 1 HR FIRE BARRIER
- 2 HR FIRE BARRIER

Occupancy Data:

Zone	Occupancy Type	Area	SF Per Occupant	Occupant Load
R1	Office	731 SF	200	1
R2	Office	12,557 SF	200	62
R3	Office	777 SF	200	3
R2	Office	1,681 SF	200	8
R2	Office	6,647 SF	200	40

KEYNOTES	
###	DESCRIPTION
02 003	CITY SIDEWALK
03 005	CONCRETE STAIR, RE: STRUCT. DRAWINGS
32 002	CONCRETE PLANTER WITH LINER, SOIL, AND VEGETATION
32 017	NATURAL STONE SLATE PATIO PAVER SYSTEM
32 018	CORTEN STEEL PLANTER BOXES WITH LINER, GROWING MEDIA, VEGETATION
EWS 01	EXISTING RENOVATED BRICK WALL, CLEAN, REPOINT, REPLACET AND SEAL BRICK AS NECESSARY. 2x4 INTERIOR FURNING AT 24" O.C., 3" CLOSED-CEL SPRAY INSUL, 5/8" GYP, PAINTED.
EWS 08	VERTICALLY ORIENTED 1x2 CHARRED CEDAR BOARDS, MODIFIED WIDTHS CUT TO PATTERN SHOWN @ 4" O.C. WITH STEEL CLIP BACKUP SYSTEM ATTACHED TO EDGE OF SLAB AS NECESSARY. B.O.D. RESAWN TIMBER CO. SHOU SUGI BAN CHARRED CEDAR)
EWS 10	FREE-STANDING SCREEN WALL, VERTICALLY ORIENTED CHARRED WOOD BOARDS (2x8) WITH WELDED CORTEN STEEL FRAME

1003

OOMBRA PROJECT #

2827 JOHN R STREET
DETROIT MI 48201

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BRUSH PARK PROPERTIES, LLC
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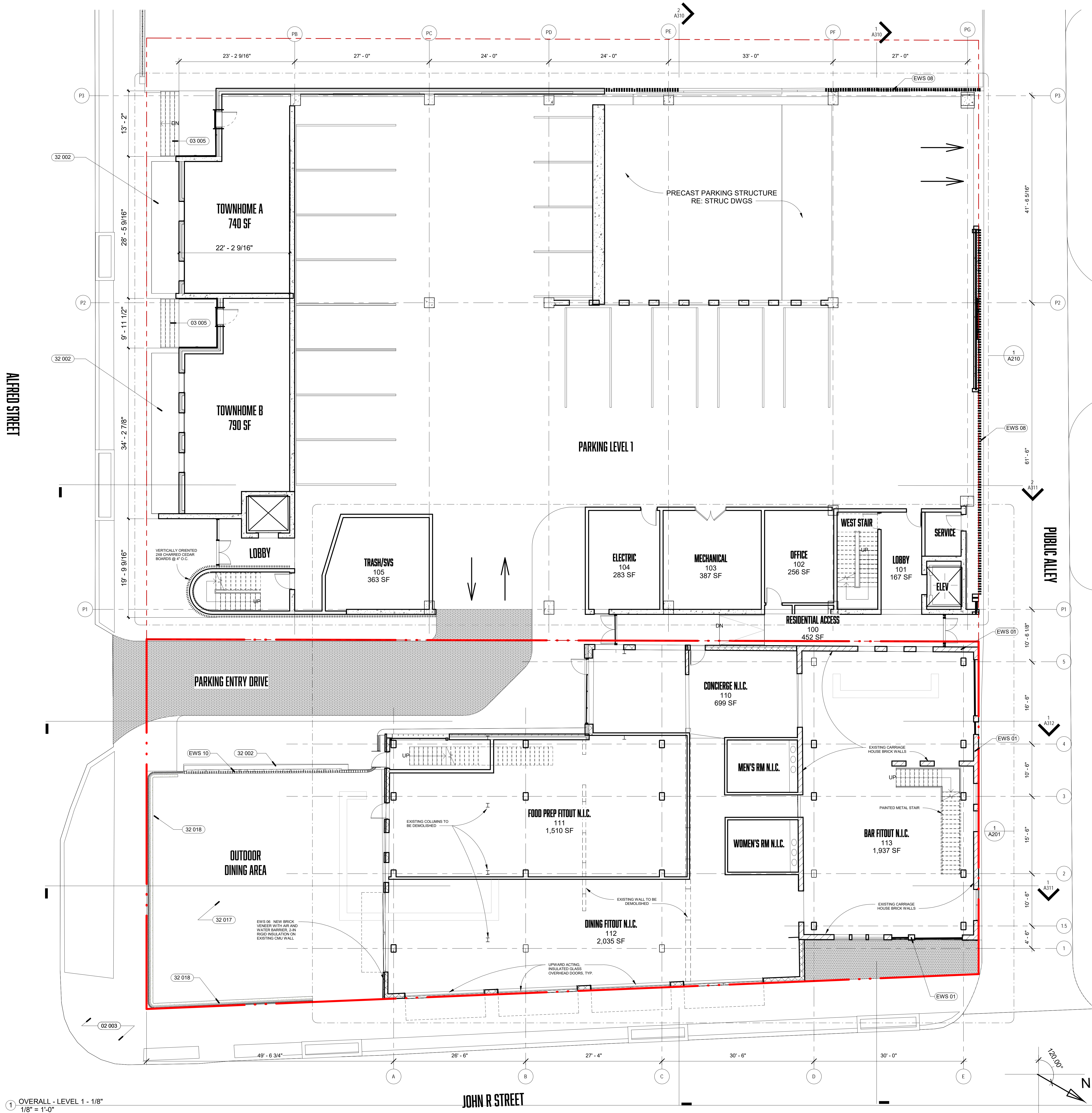
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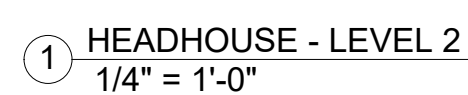
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OVERALL PLAN - LEVEL 1

A100



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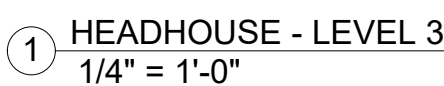
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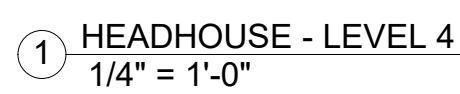
LEVEL 3 FLOOR PLAN

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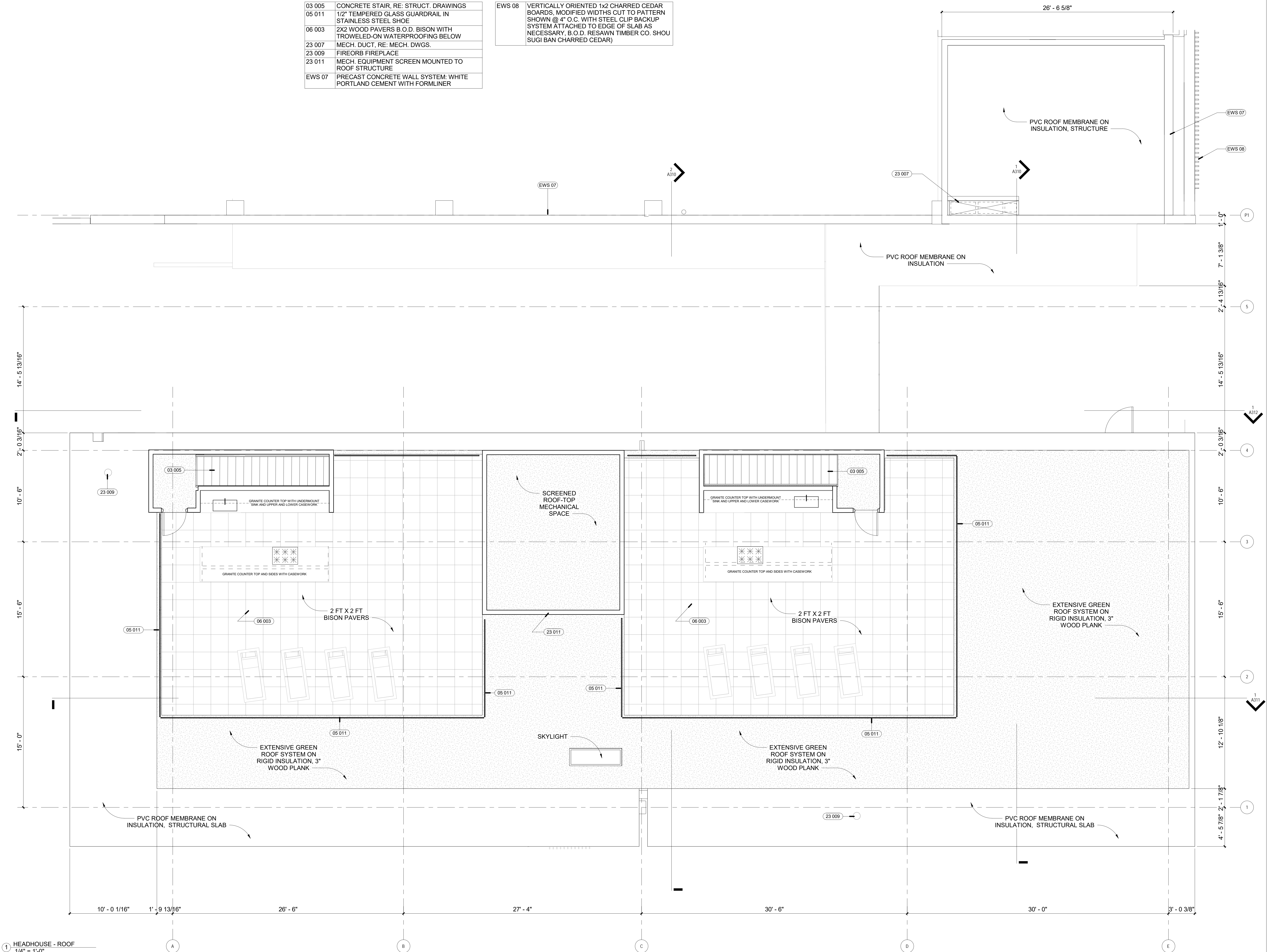
KEYNOTES	
###	DESCRIPTION
EWS 04	THERMALLY-BROKEN, INSULATED WOOD WINDOW SYSTEM WITH LOW-E GLASS: B.O.D MILGUARD ESSENCE SERIES
EWS 02	ZINC PANEL WALL SYSTEM: 1" / 4" FORMED ZINC PANEL, 1/4" AIRSPACE, 2" RIGID INSULATION BETWEEN 2 1/2" Z-GIRTS, WRB, 5/8" DENSGLASS W/ SEALED JOINTS, 6" METAL STUDS @ 16" O.C. WITH 3" SPRAYED FOAM POLYURETHANE INSULATION, AND 5/8" GYP BOARD
EWS 07	PRECAST CONCRETE WALL SYSTEM: WHITE PORTLAND CEMENT WITH FORMLINER

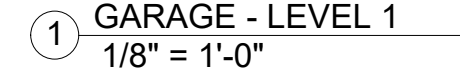


OMBRA PROJECT #

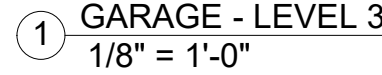
SCALE : AS INDICATED 4/21/2018 2:02:00 PM

KEYNOTES	
###	DESCRIPTION
EWS 08	VERTICALLY ORIENTED 1x2 CHARRED CEDAR BOARDS, MODIFIED WIDTHS CUT TO PATTERN SHOWN @ 4" O.C. WITH STEEL CLIP BACKUP SYSTEM ATTACHED TO EDGE OF SLAB AS NECESSARY, B.O.D. RESAWN TIMBER CO. SHOU SUGI BAN CHARRED CEDAR)



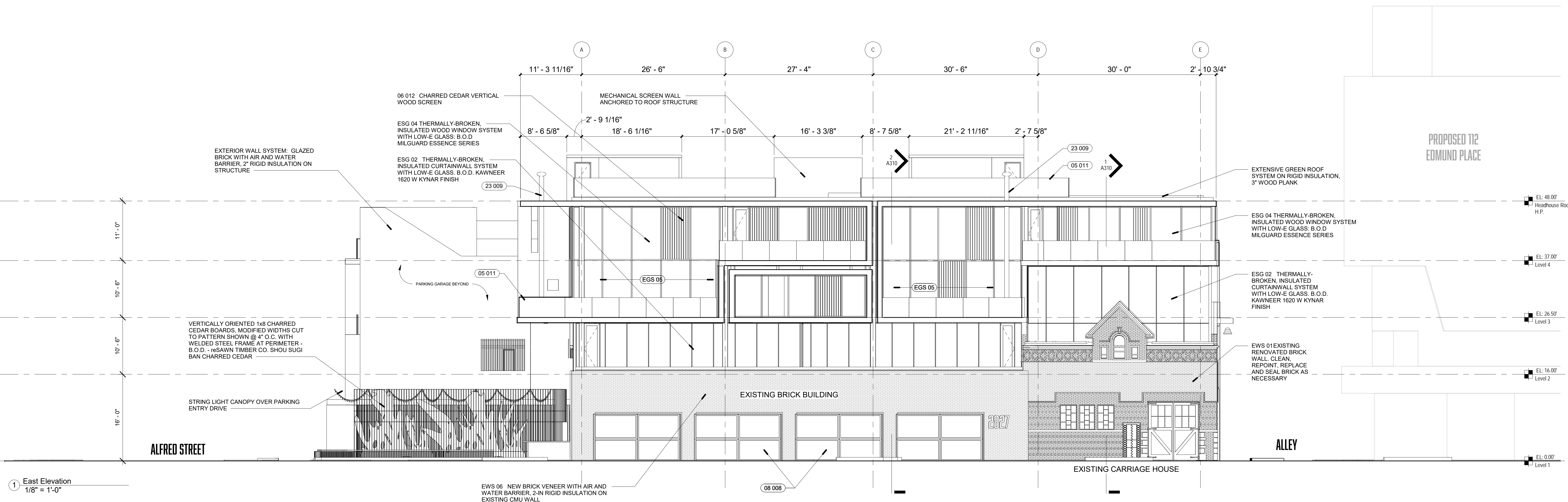
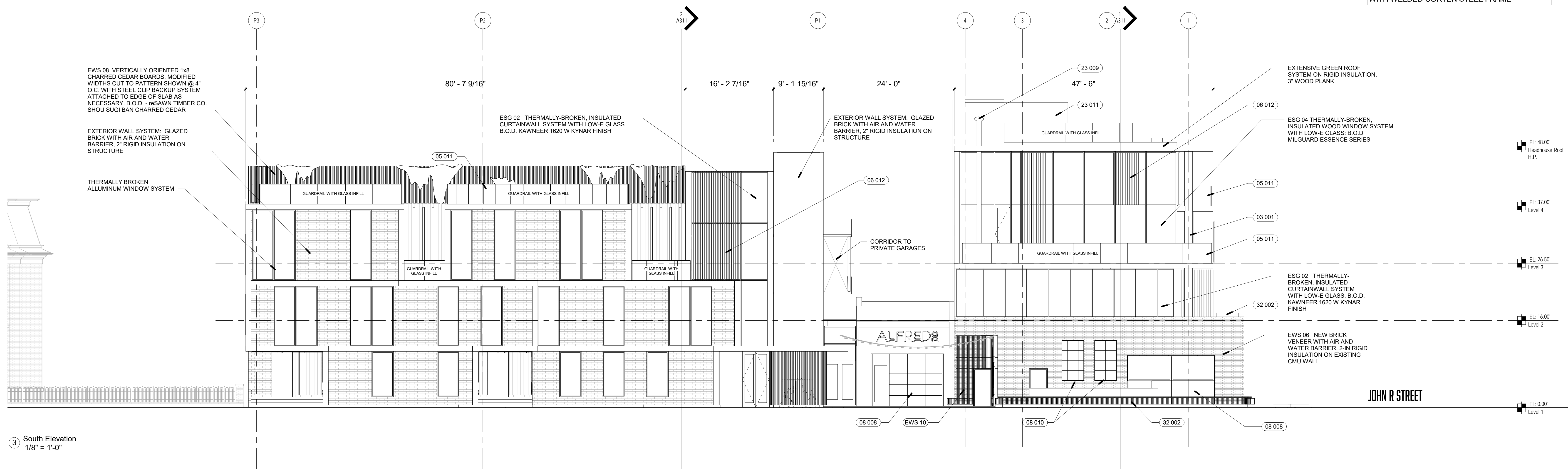


GARAGE PLANS
 A210
 SCALE : AS INDICATED
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KEYNOTES	
###	DESCRIPTION
03 001	STRUCTURAL CONCRETE, RE: STRUCT. DWGS.
05 011	1/2" TEMPERED GLASS GUARDRAIL IN STAINLESS STEEL SHOE
06 012	CHARRED CEDAR VERTICAL WOOD SCREEN
08 008	UPWARD ACTING, FOLDING DOOR, CLEAR-VUE BY WILSON INDUSTRIAL DOOR. ENLARGE OPENINGS IN EXISTING MASONRY WALL
08 010	EXISTING WINDOWS TO REMAIN
23 009	FIREORB FIREPLACE
23 011	MECH. EQUIPMENT SCREEN MOUNTED TO ROOF STRUCTURE
32 002	CONCRETE PLANTER WITH LINER, SOIL, AND VEGETATION
EGS 05	THERMALLY BROKEN, INSULATED WOOD SLIDING DOOR SYSTEM WITH LOW-E GLASS; 8.0"D. MILIGUARD GLASS WALL SYSTEM
EWS 10	FREE-STANDING SCREEN WALL, VERTICALLY ORIENTED CHARRED WOOD BOARDS (2X8) WITH WELDED CORTEN STEEL FRAME



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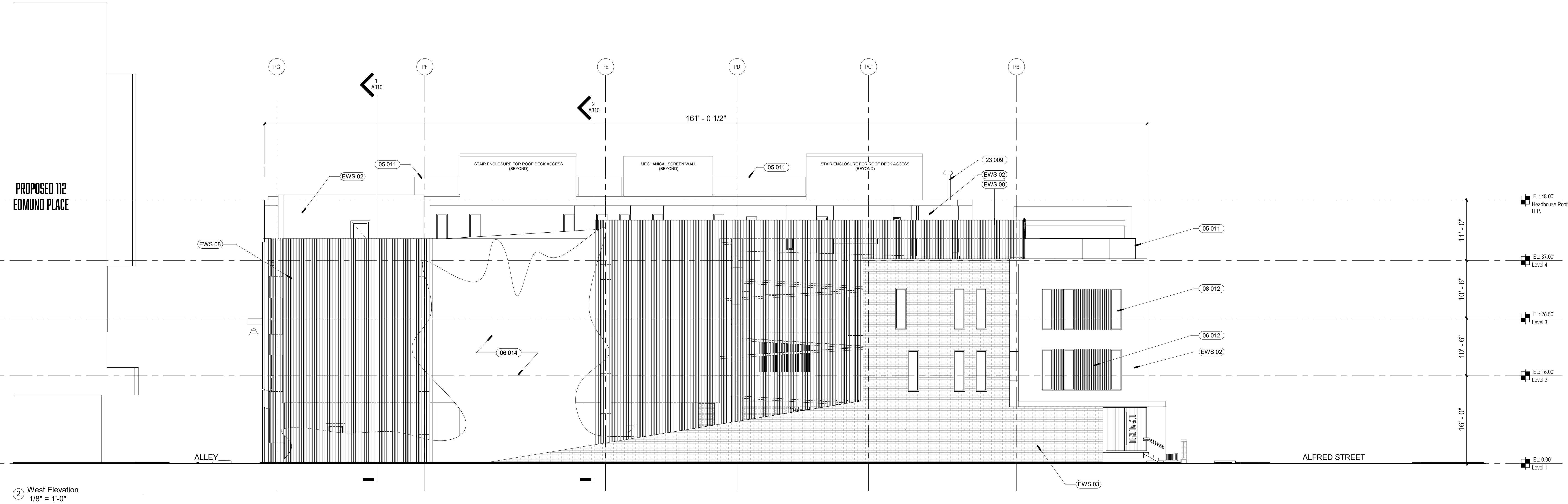
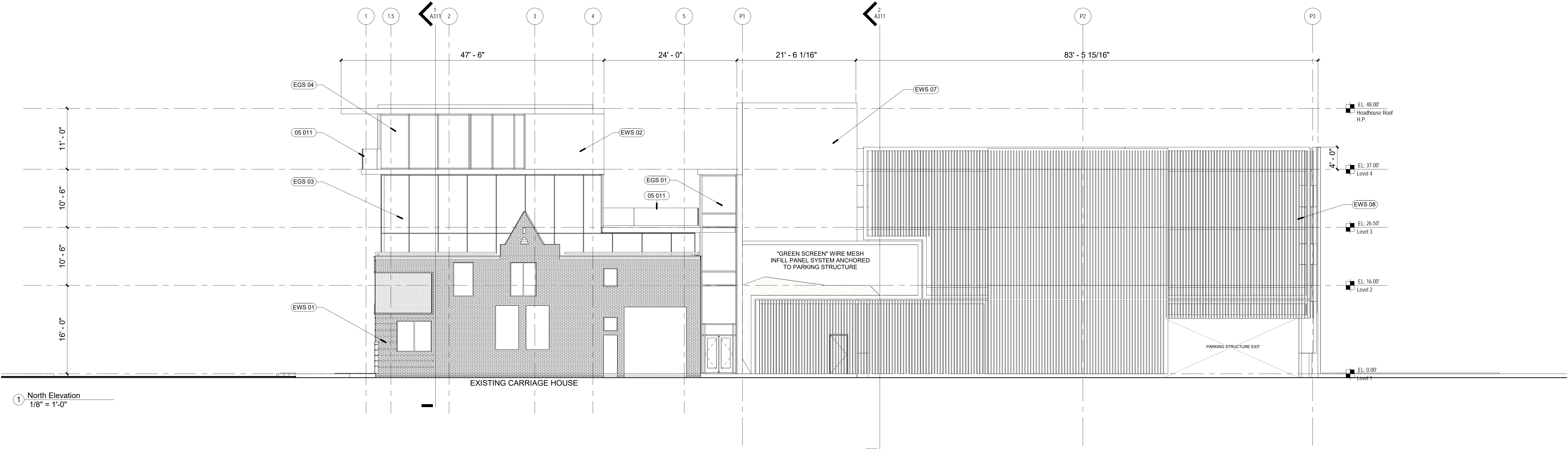
DRAWING ISSUE	DATE
CONCEPTUAL DESIGN	11.16.2017
SCHEMATIC DESIGN	01.18.2018
BUILDING SYSTEMS SCHEMATIC DESIGN	04.20.2018

BUILDING ELEVATIONS

A302

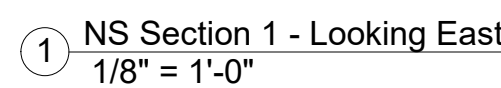
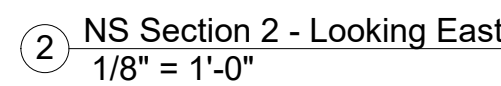
KEYNOTES	
###	DESCRIPTION
05 011	1/2" TEMPERED GLASS GUARDRAIL IN STAINLESS STEEL SHOE
06 012	CHARRED CEDAR VERTICAL WOOD SCREEN
06 014	VERTICAL CHARRED CEDAR WITH GREENSCREEN PANEL WALL SYSTEM
08 012	THERMALLY BROKEN INSULATED ALUMINUM WINDOW SYSTEM
23 009	FIREORB FIREPLACE
EGS 01	THERMALLY-BROKEN, INSULATED STOREFRONT SYSTEM WITH LOW-E GLASS. B.O.D. KAWNEER 451T-VG W KYNAR FINISH
EGS 03	THERMALLY-BROKEN, INSULATED INTERNALLY REINFORCED SSG CURTAINWALL SYSTEM WITH LOW-E GLASS. B.O.D. KAWNEER 1620 SSG W KYNAR FINISH
EGS 04	THERMALLY-BROKEN, INSULATED WOOD WINDOW SYSTEM WITH LOW-E GLASS. B.O.D. MILGUARD ESSENCE SERIES
EWS 01	EXISTING RENOVATED BRICK WALL. CLEAN, REPOINT, REPLACE AND SEAL BRICK AS NECESSARY. 2x4 INTERIOR FURRING AT 24" O.C., 3" CLOSED-CEL SPRAY INSUL, 5/8" GYP, PAINTED.

KEYNOTES	
###	DESCRIPTION
EWS 02	ZINC PANEL WALL SYSTEM: 1 1/4" FORMED ZINC PANEL, 1/4" AIRSPACE, 2" RIGID INSULATION BETWEEN 2 1/2" Z-GIRTS, WRB, 5/8" DENSGLASS W/ SEALED JOINTS, 6" METAL STUDS @ 16" O.C. WITH 3" SPRAYED FOAM POLYURETHANE INSULATION, AND 5/8" GYP BOARD
EWS 03	FULL BRICK WALL SYSTEM: BRICK, AIR AND WATER BARRIER, 5/8" DENSGLASS W/ SEALED JOINTS, 2" RIGID INSULATION, STRUCTURE, 1" METAL FURRING, SHEET VAPOR BARRIER, 1/2" PTD GYP BOARD
EWS 07	PRECAST CONCRETE WALL SYSTEM: WHITE PORTLAND CEMENT WITH FORMLINER
EWS 08	VERTICALLY ORIENTED 1x2 CHARRED CEDAR BOARDS, MODIFIED WIDTHS CUT TO PATTERN SHOWN @ 4" O.C. WITH STEEL CLIP BACKUP SYSTEM ATTACHED TO EDGE OF SLAB AS NECESSARY. B.O.D. RESAWN TIMBER CO. SHOU SUGI BAN CHARRED CEDAR)



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KEYNOTES	
###	DESCRIPTION
EGS 04	THERMALLY-BROKEN, INSULATED WOOD WINDOW SYSTEM WITH LOW-E GLASS; B.O.D MILGUARD ESSENCE SERIES
EWS 01	EXISTING RENOVATED BRICK WALL. CLEAN, REPOINT, REPLACE AND SEAL BRICK AS NECESSARY. 2x4 INTERIOR FURRING AT 24" O.C. 3" CLOSED-CELL SPRAY INSUL, 5/8" GYP, PAINTED.
EWS 02	ZINC PANEL WALL SYSTEM: 1 1/4" FORMED ZINC PANEL, 1/4" AIRSPACE, 2" RIGID INSULATION BETWEEN 2 1/2" Z-GIRTS, WRB, 5/8" DENSGLASS W/ SEALED JOINTS, 6" METAL STUDS @ 16" O.C. WITH 3" SPRAYED FOAM POLYURETHANE INSULATION, AND 5/8" GYP BOARD
EWS 03	FULL BRICK WALL SYSTEM: BRICK, AIR AND WATER BARRIER, 5/8" DENSGLASS W/ SEALED JOINTS, 2" RIGID INSULATION, STRUCTURE, 1" METAL FURRING, SHEET VAPOR BARRIER, 1/2" PTD GYP BOARD
EWS 06	NEW BRICK VENEER WITH AIR AND WATER BARRIER, 2-IN RIGID INSULATION ON EXISTING CMU WALL
EWS 07	PRECAST CONCRETE WALL SYSTEM: WHITE PORTLAND CEMENT WITH FOMLINER
EWS 08	VERTICALLY ORIENTED 12% CHARRED CEDAR BOARDS, MODIFIED WIDTHS CUT TO PATTERN SHOWN @ 4" O.C. WITH STEEL CLIP BACKUP SYSTEM ATTACHED TO EDGE OF SLAB AS NECESSARY. B.O.D. RESAWN TIMBER CO. SHOU SUGI BAN CHARRED CEDAR)

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SCALE : AS INDICATED 4/21/2018 2:02:23 PM

OWNER

ARCHITECT

STRUCTURAL ENGINEER

LANDSCAPE & CIVIL ENGINEER

MEP ENGINEER

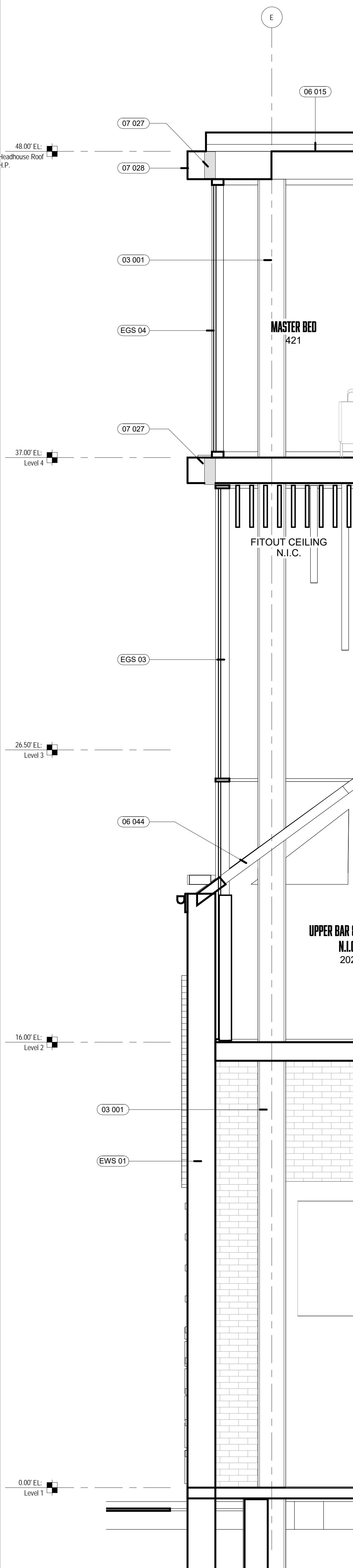
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WALL SECTIONS

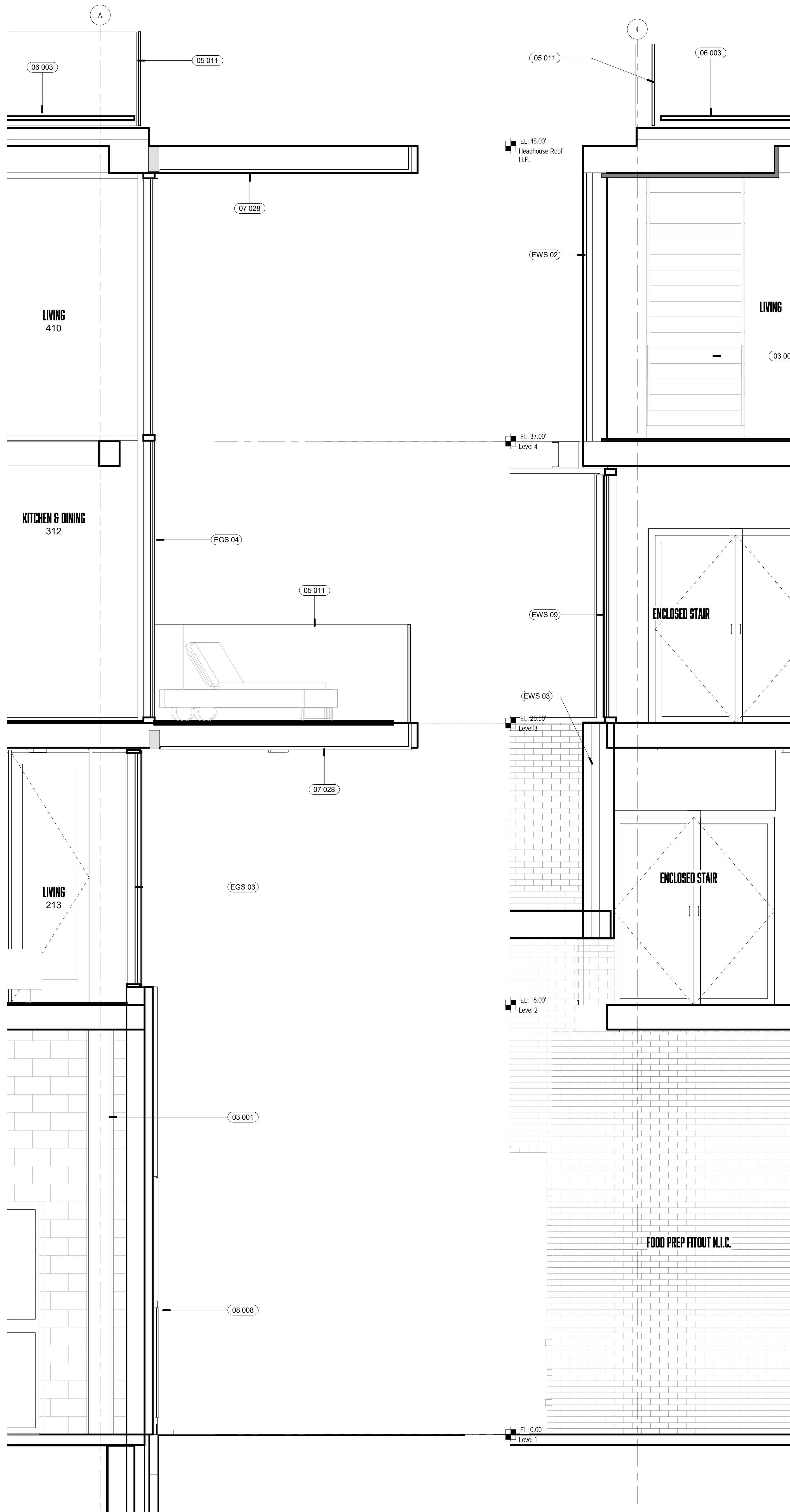
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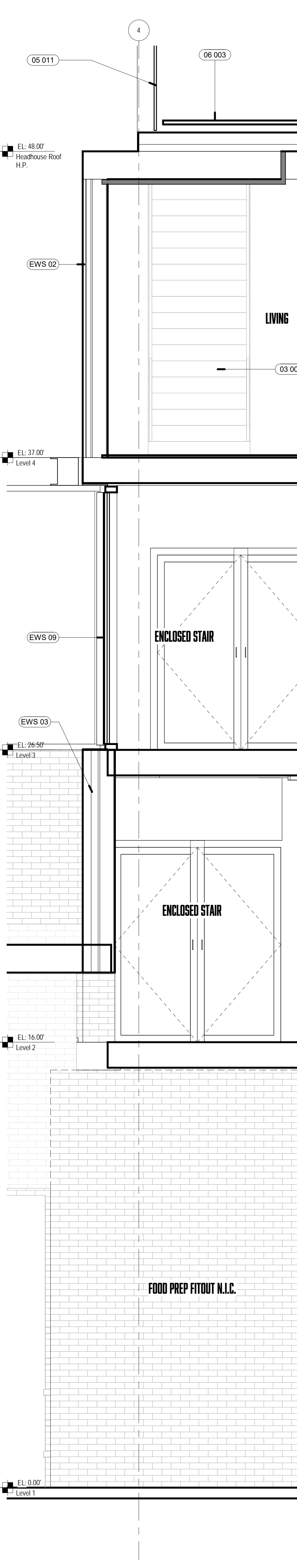
KEYNOTES	
####	DESCRIPTION
03 001	STRUCTURAL CONCRETE, RE: STRUCT. DWGS.
03 005	CONCRETE STAIR, RE: STRUCT. DRAWINGS
05 011	1/2" TEMPERED GLASS GUARDRAIL IN STAINLESS STEEL SHOE
06 003	2X2 WOOD PAVERS B.O.D. BISON WITH TROWELED-ON WATERPROOFING BELOW
06 015	3" WOOD PLANK
06 044	HEAVY TIMBER CARRIAGE HOUSE BRACING
07 027	STRUCTURAL THERMAL BREAK, TYP
07 028	ZINC PANEL ON C.I.P. CONCRETE, TYP WITH CAST-IN LED LIGHT FIXTURES
08 008	UPWARD ACTING, FOLDING DOOR, CLEAR-VUE BY WILSON INDUSTRIAL DOOR, ENLARGE OPENINGS IN EXISTING MASONRY WALL
23 009	FIREORB FIREPLACE
EGS 03	THERMALLY-BROKEN, INSULATED INTERNALLY REINFORCED SSG CURTAINWALL SYSTEM WITH LOW-E GLASS, B.O.D. KAWNEER 1620 SSG W KYNAR FINISH
EGS 04	THERMALLY-BROKEN, INSULATED WOOD WINDOW SYSTEM WITH LOW-E GLASS, B.O.D. MILGLAUZ ESSENCE SERIES
EGS 05	THERMALLY BROKEN, INSULATED WOOD SLIDING DOOR SYSTEM WITH LOW-E GLASS, B.O.D. MILGLAUZ GLASS WALL SYSTEM
EWS 01	EXISTING RENOVATED BRICK WALL, CLEAN, REPOINT, REPLACE AND SEAL BRICK AS NECESSARY. 2x4 INTERIOR FURRING AT 24" O.C., 3" CLOSED-CELL SPRAY INSUL, 5/8" GYP, PAINTED.
EWS 02	ZINC PANEL WALL SYSTEM: 1 1/4" FORMED ZINC PANEL, 1/4" AIRSPACE, 2" RIGID INSULATION BETWEEN 2 1/2" Z-GIRTS, WRB, 5/8" DENSGLASS W SEALED JOINTS, 6" METAL STUDS @ 16" O.C. WITH 3" SPRAYED FOAM POLYURETHANE INSULATION, AND 5/8" GYP BOARD
EWS 03	FULL BRICK WALL SYSTEM: BRICK, AIR AND WATER BARRIER, 5/8" DENSGLASS W SEALED JOINTS, 2" RIGID INSULATION, STRUCTURE, 1" 10' O.P. FURRING, SHEET PAPER BARRIER, 1/2" PTD GYP BOARD
EWS 09	CHANNEL GLASS WALL SYSTEM WITH CONTINUOUS STRIP LIGHT AT PERIMETER



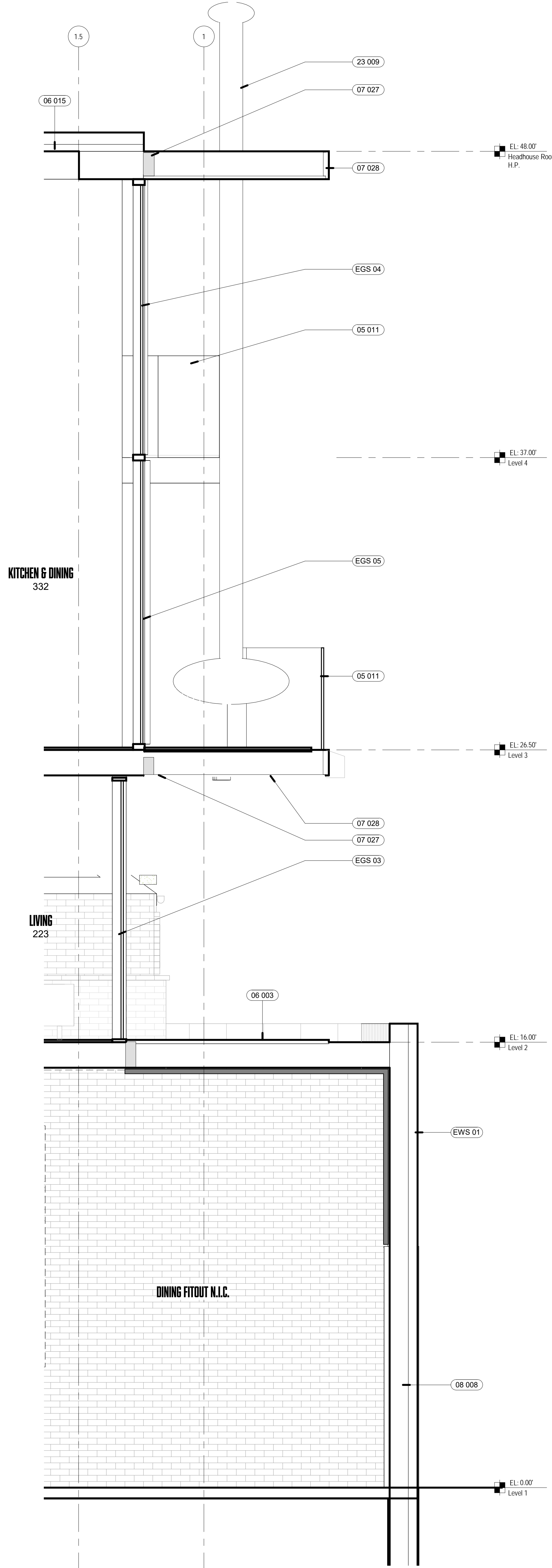
4 North Wall Section - Headhouse
1/2" = 1'-0"



3 South Wall Section - Headhouse
1/2" = 1'-0"



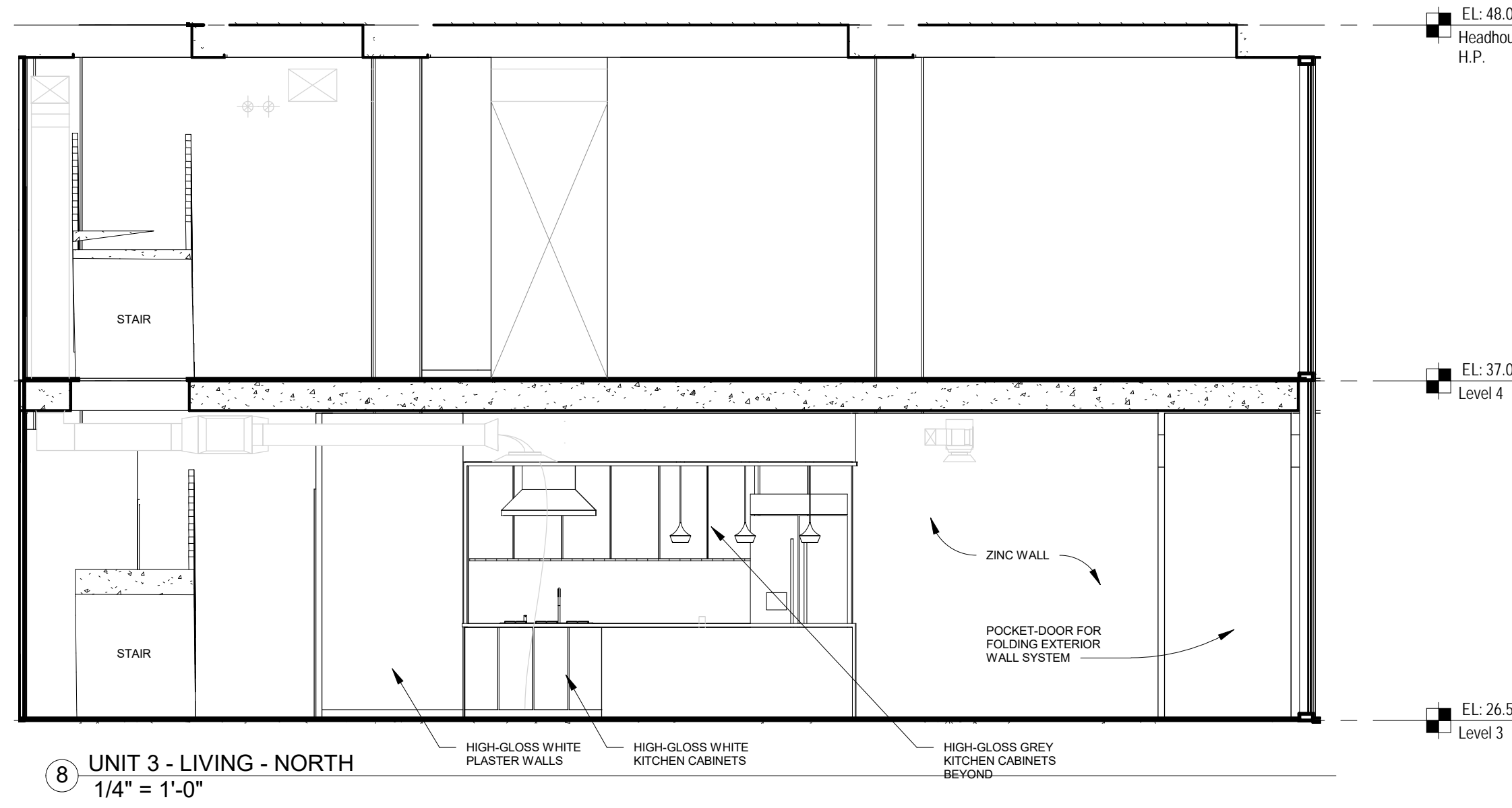
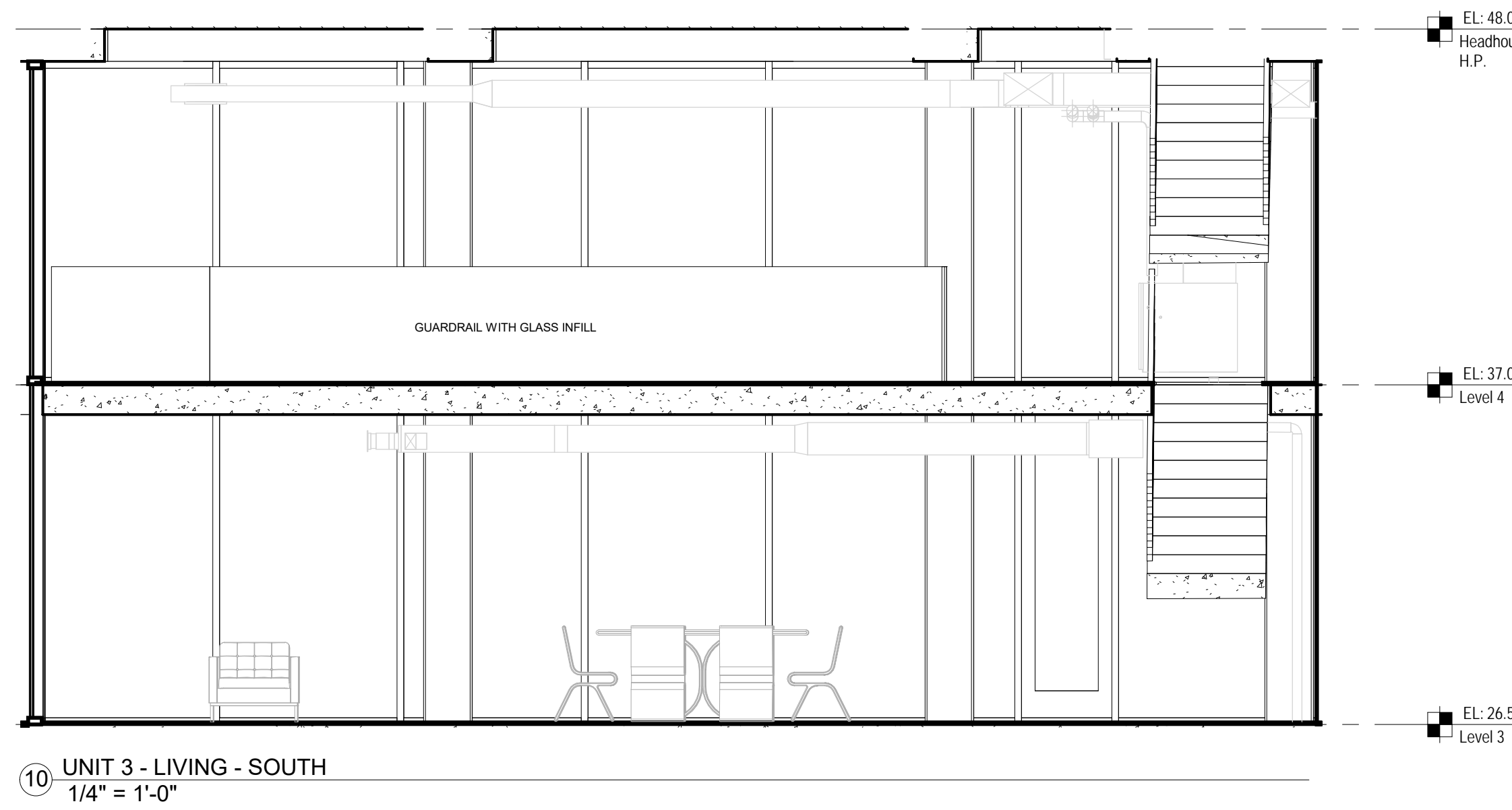
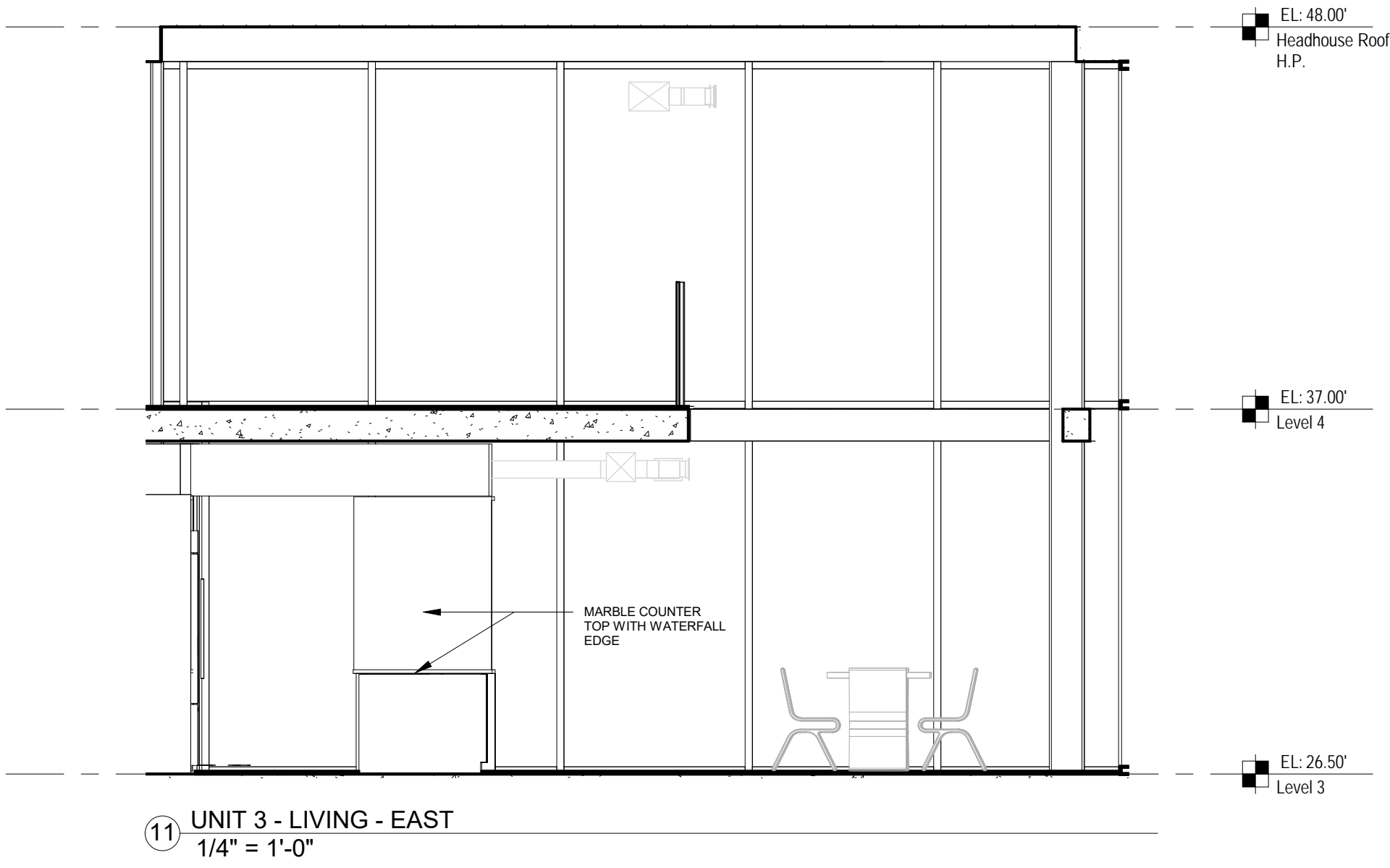
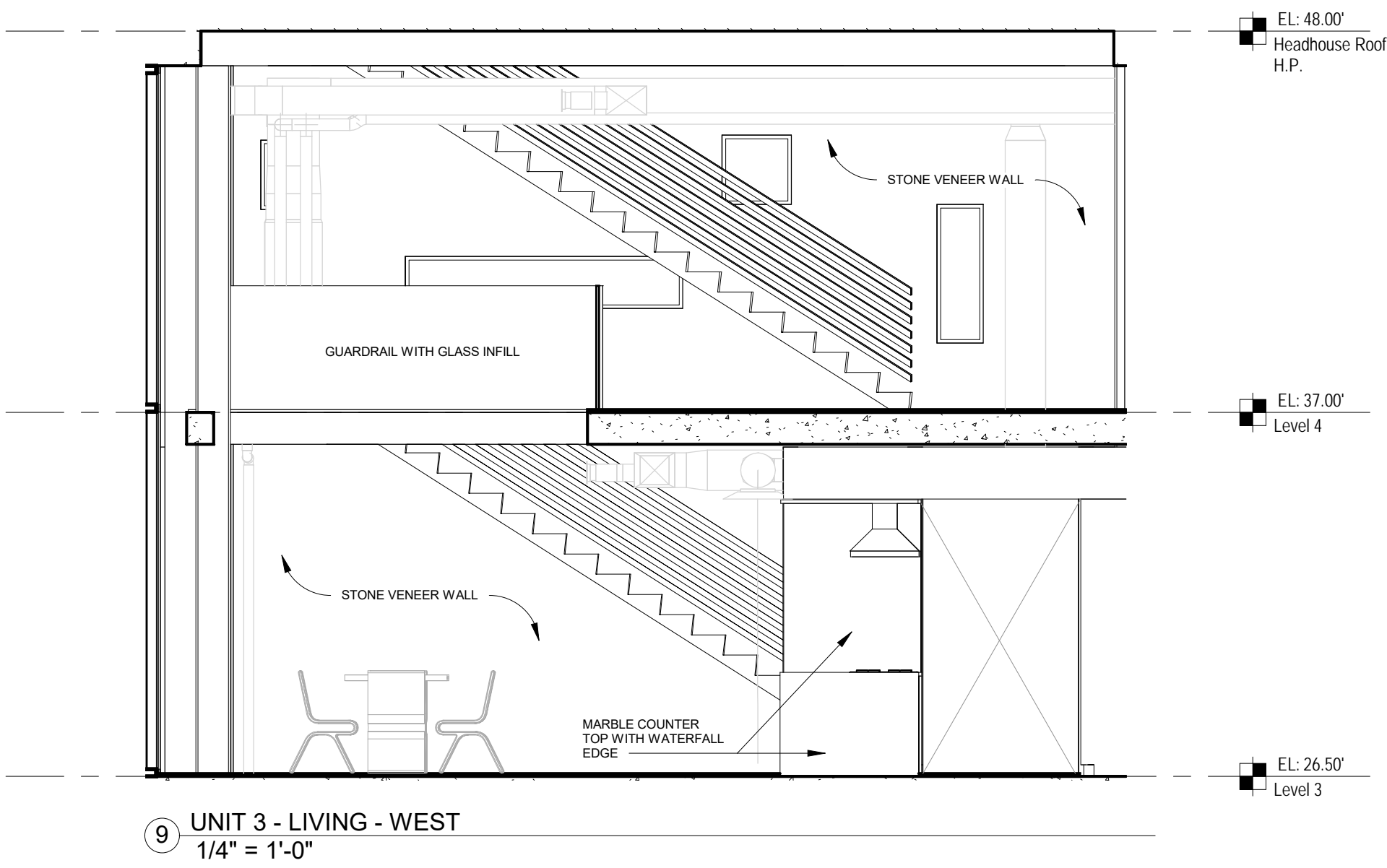
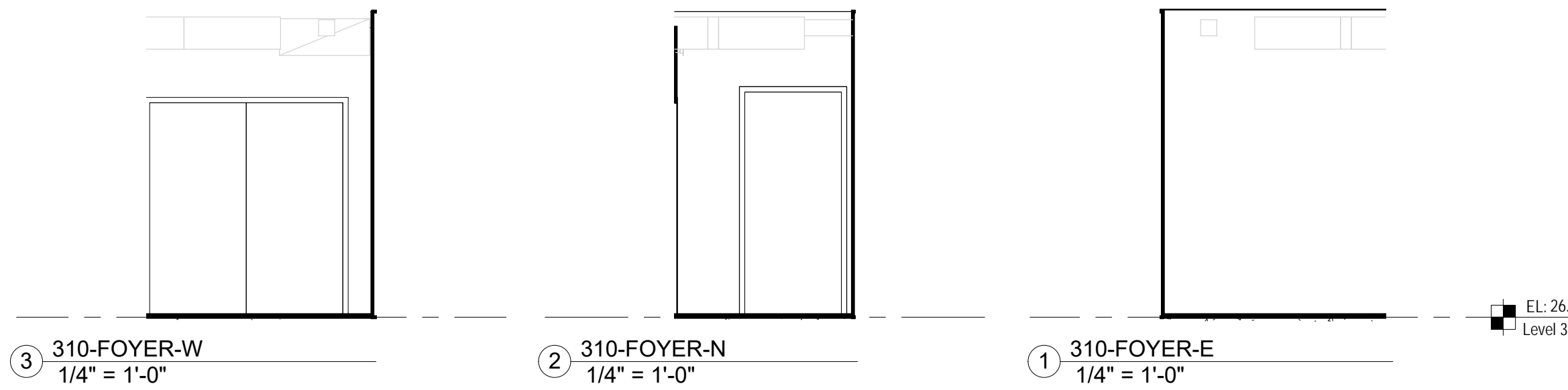
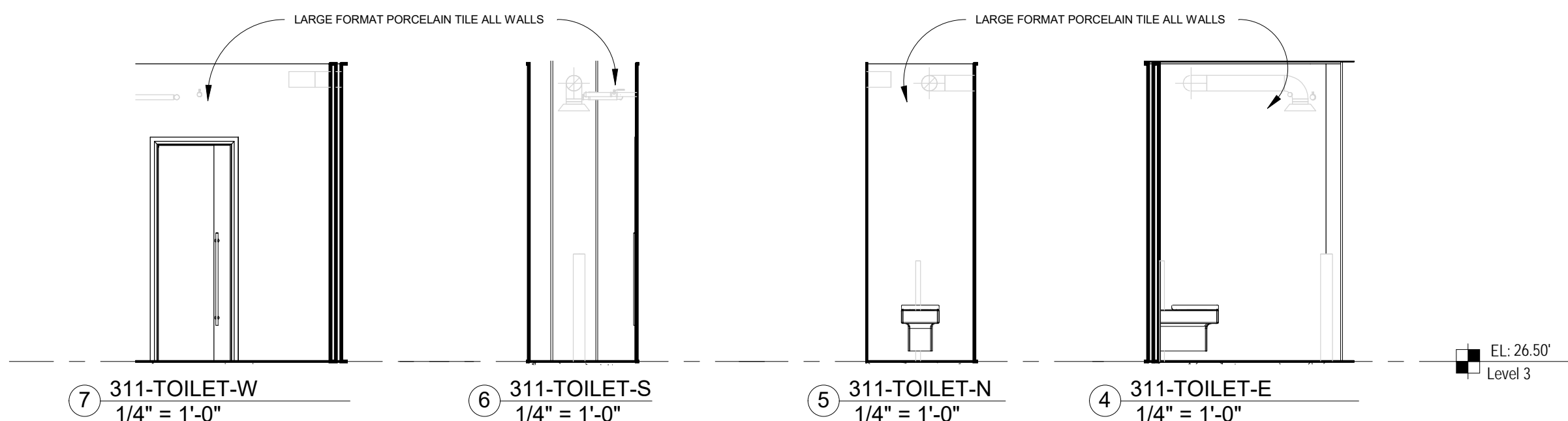
② West Wall Section - Headhouse
1/2" = 1'-0"



① East Wall Section - John R
1/2" = 1'-0"



KEYNOTES	
###	DESCRIPTION



1003

OMBRA PROJECT #

2827 JOHN R STREET
DETROIT MI 48201

OWNER

BRUSH PARK PROPERTIES, LLC
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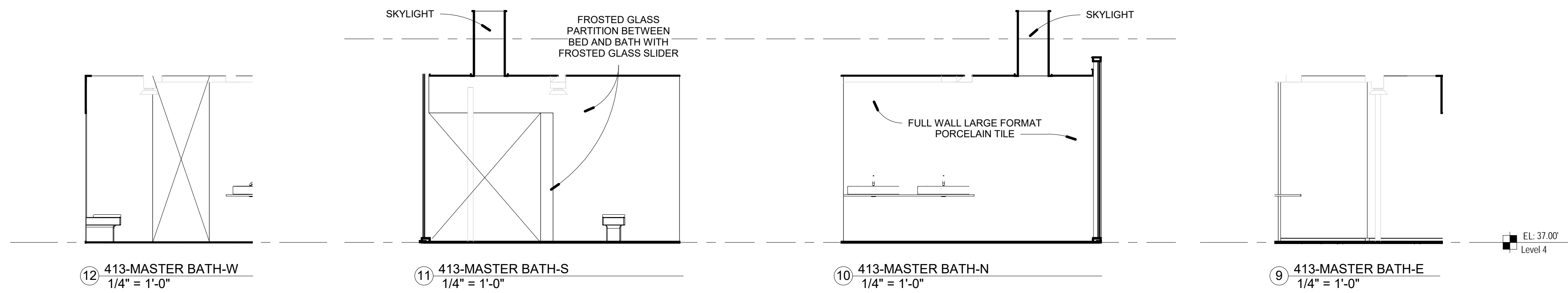
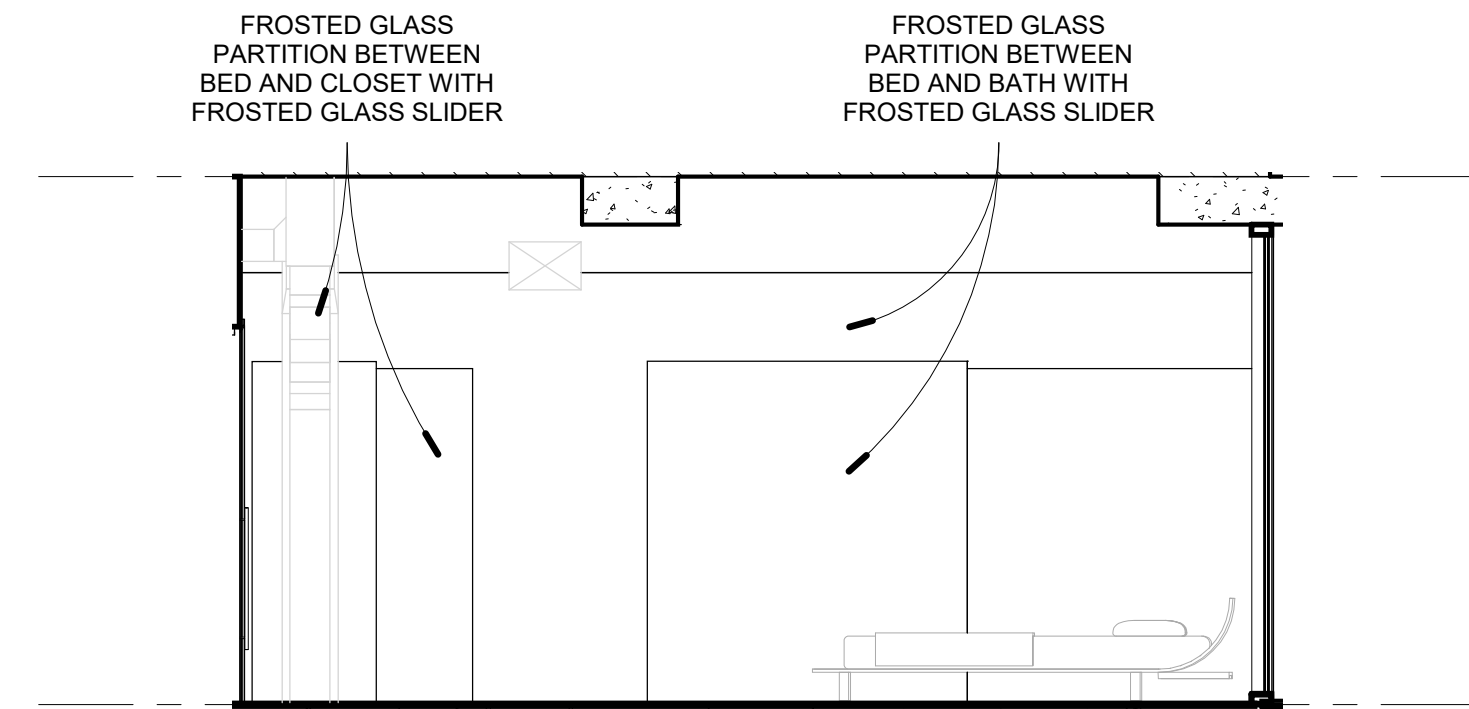
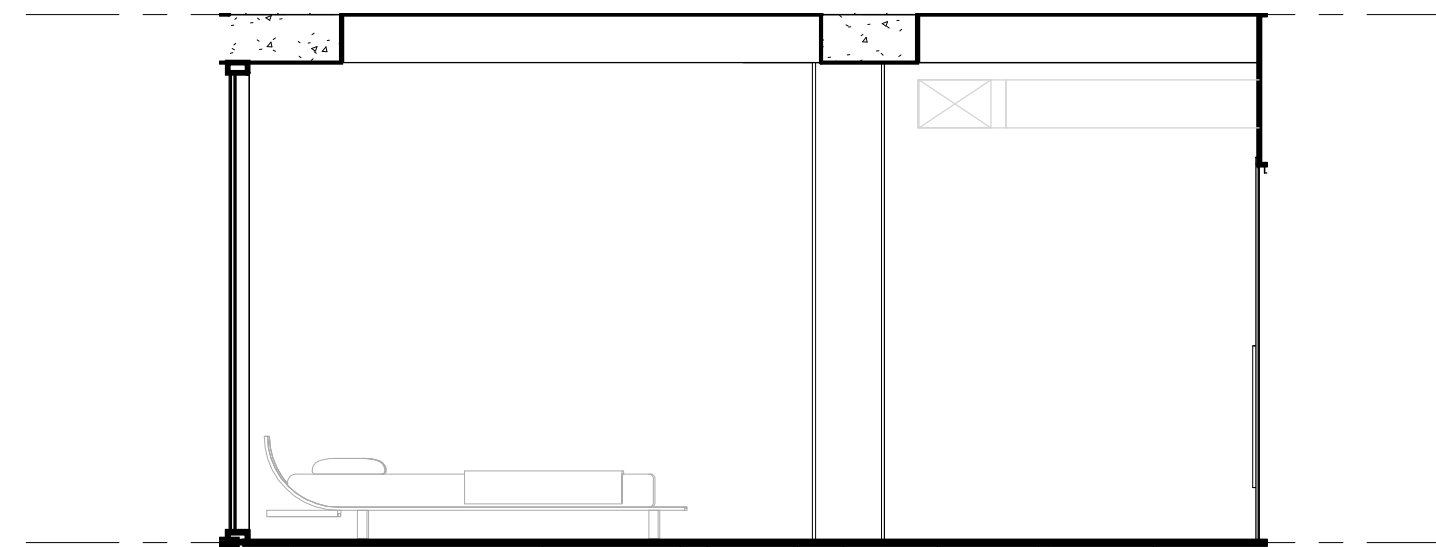
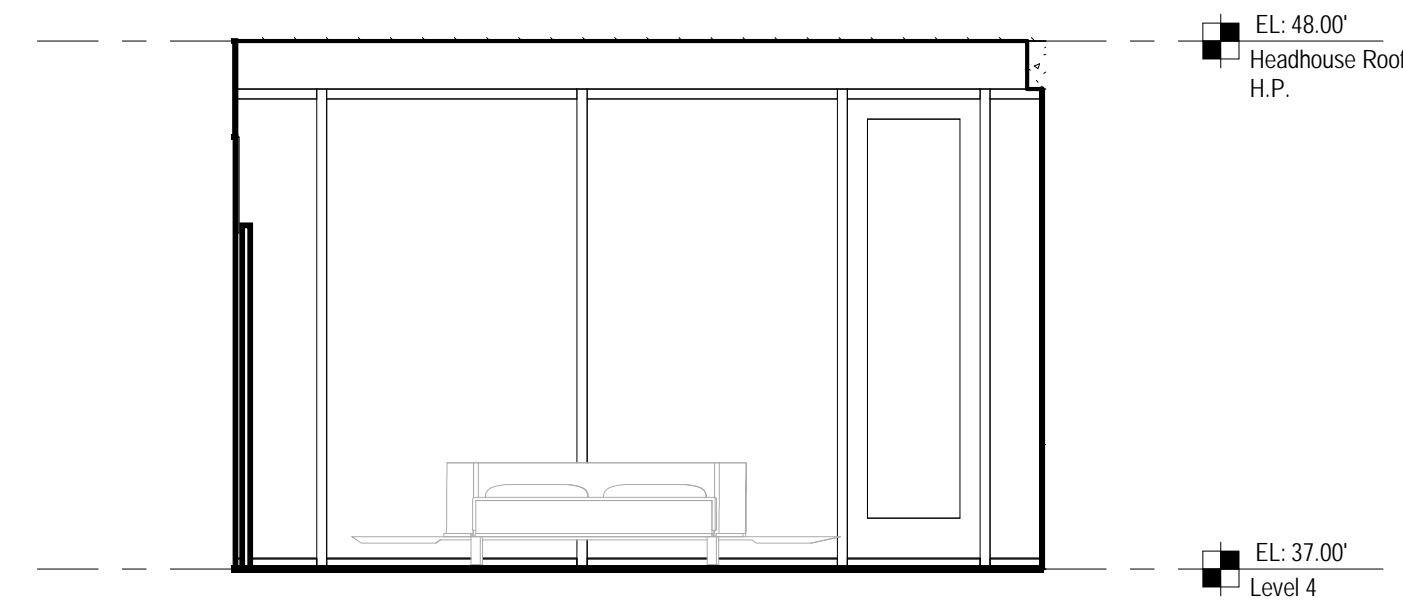
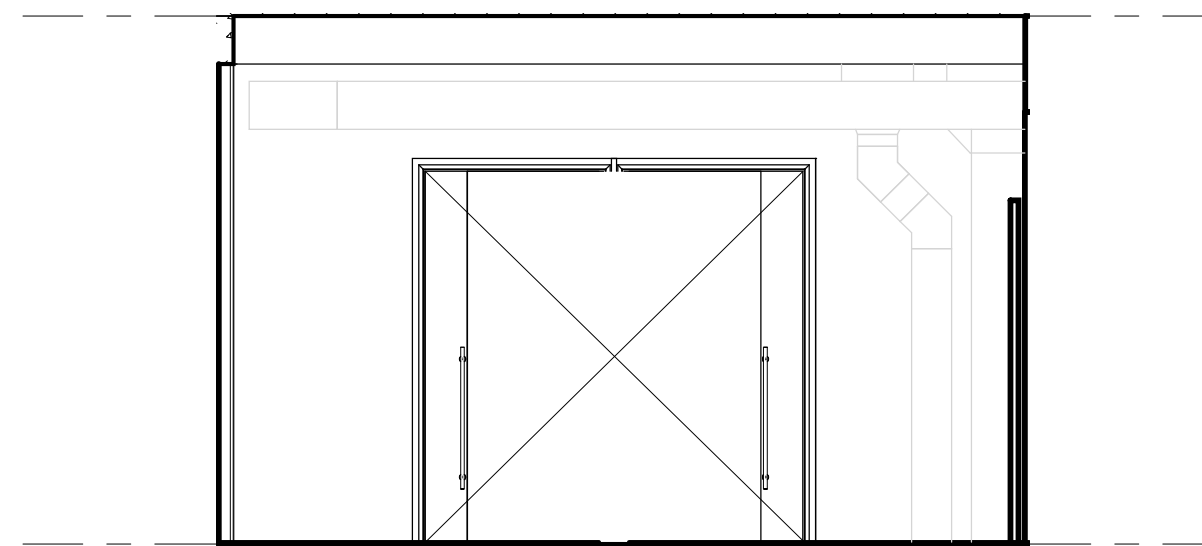
UNIT 4 - INTERIORS

A410

SCALE : AS INDICATED 4/21/2018 2:02:26 PM



KEYNOTES	
###	DESCRIPTION



1003

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[illegible]

UNIT 4 - INTERIORS

A411

SCALE : AS INDICATED 4/21/2018 2:02:27 PM

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A. GENERAL:

- 1.THE STRUCTURAL DRAWINGS FOR THIS PROJECT ARE NOT ISSUED FOR BID UNLESS THE INDIVIDUAL SHEETS ARE IDENTIFIED AS "ISSUED FOR BID".
- 2.THE STRUCTURAL DRAWINGS FOR THIS PROJECT ARE NOT ISSUED FOR CONSTRUCTION UNLESS THE INDIVIDUAL SHEETS ARE IDENTIFIED AS "ISSUED FOR CONSTRUCTION".
- 3.U.L. FIRE RESISTANCE RATING RESTRAINT CLASSIFICATION:
- a. ALL STRUCTURAL FRAMING IS "RESTRAINED" EXCEPT AS INDICATED IN NOTE "b".
- b. THE FOLLOWING FRAMING IS "UNRESTRAINED":
1. FRAMING SUPPORTED ON BEARING WALLS (OTHER THAN CAST-IN-PLACE CONCRETE WALLS) IN END BAYS AND OTHER LOCATIONS WHERE THE END OF THE FRAMING IS NOT ABUTTING FRAMING IN AN ADJACENT BAY.
2. ALL WOOD CONSTRUCTION

B. CODES AND STANDARDS:

- 1.THE FOLLOWING CODES AND STANDARDS, INCLUDING ALL SPECIFICATIONS REFERENCED WITHIN, SHALL APPLY TO THE DESIGN, CONSTRUCTION, QUALITY CONTROL AND SAFETY OF ALL WORK PERFORMED ON THE PROJECT. USE THE VERSION REFERENCED IN THE BUILDING CODE UNLESS NOTED OTHERWISE.
- a. BUILDING CODE: 2015 INTERNATIONAL BUILDING CODE, NEW JERSEY EDITION
- b. BUILDING CODE: 2009 INTERNATIONAL BUILDING CODE
- c. "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES", ASCE 7-XX, AMERICAN SOCIETY OF CIVIL ENGINEERS.
- d. "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE", ACI 318-XX, AMERICAN CONCRETE INSTITUTE.
- e. "ACI MANUAL OF CONCRETE PRACTICE - PARTS 1 THROUGH 6.
- f. "MANUAL OF STANDARD PRACTICE", CONCRETE REINFORCING STEEL INSTITUTE.
- g. "PCI DESIGN HANDBOOK - PRECAST AND PRESTRESSED CONCRETE", PRECAST/PRESTRESSED CONCRETE INSTITUTE.
- h. "STEEL CONSTRUCTION MANUAL", AMERICAN INSTITUTE OF STEEL CONSTRUCTION, XXX EDITION, 20XX, INCLUDING ALL SPECIFICATIONS AND CODES IN PART 16.
- i. "DETAILING FOR STEEL CONSTRUCTION", AMERICAN INSTITUTE OF STEEL CONSTRUCTION.
- j. "STRUCTURAL WELDING CODE - STEEL", AWS D1.1
- k. "STRUCTURAL WELDING CODE - REINFORCING STEEL", AWS D1.4
- k. "TYPICAL CONSTRUCTION DETAILS", AISC 104, AMERICAN INSTITUTE OF TIMBER CONSTRUCTION.
- l. "STANDARD APPEARANCE GRADES FOR STRUCTURAL GLUED LAMINATED TIMBER", AITC 1107, AMERICAN INSTITUTE OF TIMBER CONSTRUCTION.
- m. "STANDARD FOR DIMENSIONS OF STRUCTURAL GLUED LAMINATED TIMBER", AITC 113, AMERICAN INSTITUTE OF TIMBER CONSTRUCTION.
- n. "STANDARD SPECIFICATION FOR STRUCTURAL GLUED LAMINATED TIMBER OF SOFT SPECIES", AITC 117, AMERICAN INSTITUTE OF TIMBER CONSTRUCTION.
- o. "STANDARD SPECIFICATION FOR STRUCTURAL GLUED LAMINATED TIMBER OF HARDWOOD SPECIES", AITC 119, AMERICAN INSTITUTE OF TIMBER CONSTRUCTION.
- p. "MANUFACTURING QUALITY CONTROL SYSTEMS MANUAL FOR STRUCTURAL GLUED LAMINATED TIMBER", AITC 200, AMERICAN INSTITUTE OF TIMBER CONSTRUCTION.
- q. "STRUCTURAL GLUED LAMINATED TIMBER", ANSI/AITC A 190.1, AMERICAN INSTITUTE OF TIMBER CONSTRUCTION.
- r. "NATIONAL DESIGN SPECIFICATION (NDS) FOR WOOD CONSTRUCTION w/ 2005 SUPPLEMENT", NDS.AMERICAN FOREST & PAPER ASSOC.
- s. "PANEL DESIGN SPECIFICATION", APA PDS, APA - THE ENGINEERED WOOD ASSOCIATION
- t. "TOLERANCE MANUAL FOR PRECAST AND PRESTRESSED CONCRETE CONSTRUCTION", PRECAST/PRESTRESSED CONCRETE INSTITUTE, PUBLICATION MNL-135.

C. DESIGN LOADS:

1. GRAVITY LOADS:
- a. SEE DRAWING _____ FOR LOAD MAPS INDICATING ALL GRAVITY LOADS FOR WHICH THE STRUCTURE HAS BEEN DESIGNED.
- b. LIVE LOAD REDUCTIONS HAVE BEEN USED FOR DESIGN OF THE STRUCTURAL FRAMING WHERE PERMITTED PER ASCE 7.

LOCATION		LOCATION	
ALL FLOORS, U.N.O.	100 PSF		
LOBBIES	100 PSF		
BALLROOMS	100 PSF		
KITCHENS	150 PSF		
GUEST ROOM LEVELS	40 PSF		
MECHANICAL ROOMS	250 PSF		
MECH PENTHOUSE FLOOR	250 PSF		
STORAGE ROOMS	200 PSF		
LIBRARIES	150 PSF		
DENSE FILE STORAGE	250 PSF		
PARKING LEVELS, U.N.O.	40 PSF		
PARKING LEVELS SUBJECT TO SNOW LOADS	80 PSF		
LOADING DOCK	250 PSF		
TRUCK DRIVING LANES	250 PSF		
TERRACE	100 PSF		
BALCONIES	100 PSF		
ROOF	20 PSF		
ELEVATOR MACHINE ROOM FLOOR	125 PSF + MACHINE REACTIONS		

LOCATION		LOCATION	
PARTITIONS ON GUEST ROOM LEVELS	15 PSF		
PARTITIONS ON FLOOR WHERE LL < 100 PSF	20 PSF		
SUSPENDED CEILING & MEP LOADS (SEE NOTE "b" BELOW)	12 PSF		
BALLASTED ROOFING SYSTEM & INSULATION	50 PSF		
FLOOR FINISHES (PER INCH OF FLOOR SLAB DEPRESSION)	50 PSF		
SUSPENDED PIPING IN CEILING OF MECH. ROOMS	50 PSF		

NOTE: LIVE LOAD REDUCTIONS HAVE BEEN USED FOR DESIGN OF THE STRUCTURAL FRAMING WHERE PERMITTED

PARKING GARAGE DESIGN LOADS		
LOCATION	LIVE LOAD	SUPERIMPOSED DEAD LOAD
LOBBIES	100 PSF	5 PSF
STAIRS	100 PSF	5 PSF
ROOF	20 PSF	5 PSF
PARKING LEVELS, U.N.O.	40 PSF	5 PSF
PARKING LEVELS SUBJECT TO SNOW LOADS *	80 PSF	5 PSF

* LIVE LOADS ON PARKING LEVELS SHALL BE CONSIDERED FLOOR LIVE LOADS WHEN USED WITH ASCE 7 LOAD COMBINATIONS

ROOF SNOW LOAD:

OCCUPANCY CATEGORY: I, II, III OR IV

SNOW IMPORTANCE FACTOR, I: 1.0, 1.1 OR 1.2

GROUND SNOW LOAD, Pg: 20 PSF, 30 PSF, ETC.

TERRAIN CATEGORY: A, B, C, OR D

EXPOSURE OF ROOF: FULLY EXPOSED, ETC.

SNOW EXPOSURE FACTOR, Ce: 1.0 (MODIFY TO SUIT)

THERMAL FACTOR, Ct: 1.0, 1.1, 1.2, ETC.

FLAT ROOF SNOW LOAD, Pf: 0.7 x Ce x Ct x I x Pg = _____ PSF

I x Pg = _____ PSF

I x 20 PSF = _____ PSF

- a. THE CONTRACTOR SHALL CONFIRM THAT THE ACTUAL MECHANICAL UNITS PURCHASED ARE OF WEIGHT AND SIZE SUCH THAT THE TOTAL SUPERIMPOSED LOAD UNDER EACH UNIT DOES NOT EXCEED THE LIVE LOAD FOR WHICH THE FLOOR WAS DESIGNED IN THE FLOOR AREA WHERE THE UNIT IS LOCATED.

TOTAL SUPERIMPOSED = TOTAL EQUIPMENT WEIGHT ÷ INDICATED SERVICE LEVEL LOAD UNDER UNIT UNIT FOOTPRINT AREA DESIGN LIVE LOAD

TOTAL EQUIPMENT WEIGHT = OPERATING WT. OF UNIT + CONCRETE HOUSEKEEPING PAD + INERTIA BLOCK + OTHER ANCILLARY ITEMS ASSOCIATED WITH THE EQUIPMENT

UNIT FOOTPRINT AREA = EFFECTIVE AREA OF UNIT OR HOUSEKEEPING PAD WHICHEVER IS LARGER

EFFECTIVE AREA = (LENGTH + 6') x (WIDTH + 6')

CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER PRIOR TO CONSTRUCTION ON THE LOCATION OF ANY MECHANICAL UNITS WHERE THE TOTAL SUPERIMPOSED LOAD UNDER THE UNIT EXCEEDS THE INDICATED DESIGN LIVE LOAD FOR THE FLOOR AS INDICATED ON THE LOAD MAPS.

- b. DOES NOT INCLUDE LINE LOADS FROM MAIN AND BRANCH RUNS OF PIPING. REFER TO THE FRAMING PLANS FOR MAIN AND BRANCH PIPING LINE LOADS. THE CONTRACTOR SHALL VERIFY THAT ALL MAIN AND BRANCH LINE RUNS OF PIPING ARE LOCATED AT THE LOCATIONS SHOWN ON THE LOAD MAP DIAGRAMS.

3. WIND LOADS:
- a. MAIN WIND-FORCE RESISTING SYSTEM: CONCRETE MOMENT FRAMES
- BASIC WIND SPEED (3s GUST): (GET FROM MAP)
- OCCUPANCY CATEGORY: II
- WIND IMPORTANCE FACTOR, Iw: 1.00
- WIND EXPOSURE: A, B, C, OR D
- b. SERVICE LEVEL WIND BASE SHEARS: _____k
- NORTH-SOUTH: _____k
- EAST-WEST: _____k
- c. COMPONENTS & CLADDING:
- INTERNAL PRESSURE COEFFICIENT : ±0.18
- BUILDING EXTERIOR COMPONENTS AND CLADDING SHALL BE DESIGNED FOR THE FOLLOWING SERVICE LEVEL WIND PRESSURES:

ZONE*	EFF. WIND AREA	DESIGN PRESSURE	
		POS.	NEG.
1	10	-	-
	20	-	-
	50	-	-
	100	-	-
2	10	-	-
	20	-	-
	50	-	-
	100	-	-
3	10	-	-
	20	-	-
	50	-	-
	100	-	-
4	20	-	-
	50	-	-
	100	-	-
	200	-	-
5	20	-	-
	50	-	-
	100	-	-
	200	-	-

*NOTES:

SEE ASCE 7 FIGURE 6-____ FOR CLADDING PRESSURE ZONE

DIMENSION "a" = _____ FEET.

4. SEISMIC LOADS:
- a. ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE
- b. BASIC SEISMIC-FORCE-RESISTING SYSTEM: R=3 BRACED FRAMES (REVISE AS REQUIRED TO SUIT PROJECT)

OCCUPANCY CATEGORY	-
SEISMIC IMPORTANCE FACTOR	I _e
SOIL SITE CLASS	-
MAPPED SHORT PERIOD SPECTRAL ACCEL	S _s
MAPPED 1-SEC PERIOD SPECTRAL ACCEL	S ₁
ACCELERATION RELATED SITE COEFF	F _a
VELOCITY RELATED SITE COEFF	F _v
DESIGN SHORT SPECTRAL RESPONSE COEFF	S _{DS}
DESIGN 1-SEC SPECTRAL RESPONSE COEFF	S _{DI}
TRANSITION PERIOD	T _s
LONG-PERIOD TRANSITION PERIOD	T _L
SEISMIC DESIGN CATEGORY	-
RESPONSE MODIFICATION FACTOR	R
SYSTEM OVERSTRENGTH FACTOR	Ω _o
DEFLECTION AMPLIFICATION FACTOR	C _d
CALCULATED FUNDAMENTAL PERIOD	T
APPROXIMATE FUNDAMENTAL PERIOD	T _a
COEFF. FOR UPPER LIMIT ON Ω _o	C _u
UPPER LIMIT ON CALCULATED PERIOD	C _u x T _a
SEISMIC RESPONSE COEFF	C _s
SEISMIC BASE SHEAR	V
RESPONSE MODIFICATION FACTOR	R
SYSTEM OVERSTRENGTH FACTOR	Ω _o
CALCULATED FUNDAMENTAL PERIOD	C _d
CALCULATED FUNDAMENTAL PERIOD	T
APPROXIMATE FUNDAMENTAL PERIOD	T _a
COEFF. FOR UPPER LIMIT ON Ω _o	C _u
UPPER LIMIT ON CALCULATED PERIOD	C _u x T _a
SEISMIC RESPONSE COEFF	C _s
SEISMIC BASE SHEAR	V

5. LATERAL EARTH PRESSURES:
- a. SERVICE LEVEL "EQUIVALENT FLUID PRESSURES"

CONDITION	γ _f (pcf)
ACTIVE PRESSURE	-
AT-REST PRESSURE	-

6. OTHER LOADS:
- a. HORIZONTAL VEHICULAR IMPACT: 6k (SERVICE LEVEL) HORIZONTAL LOAD AT EITHER 1'-6" OR 2'-3" ABOVE TOP OF FLOOR AT ALL LOCATIONS SUBJECT TO VEHICULAR TRAFFIC AND PARKING.

D. FOUNDATIONS/GEOTECHNICAL REPORT:

1. FOUNDATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT PREPARED BY: ----
- REPORT NO: ----
- DATED: ----
- SEE THAT REPORT FOR ADDITIONAL INFORMATION.
2. SPREAD FOOTINGS AND CONTINUOUS WALL FOOTINGS HAVE BEEN DESIGNED FOR THE FOLLOWING NET ALLOWABLE BEARING PRESSURE: --- KSF
3. DRILLED PIERS (CAISSONS) HAVE BEEN DESIGNED FOR THE FOLLOWING:
- NET ALLOWABLE BEARING PRESSURE: --- KSF
- ALLOWABLE SKIN FRICTION (FOR COMPRESSION LOADS): --- KSF
- ALLOWABLE SKIN FRICTION (FOR TENSION LOADS): --- KSF

REFER TO THE GEOTECHNICAL REPORT FOR ADDITIONAL INFORMATION AND REQUIREMENTS REGARDING THE DRILLED PIER FOUNDATIONS

E. MATERIALS:

- 1.THE FOLLOWING ASTM STANDARDS AND DESIGN STRESSES SHALL BE USED FOR THE APPROPRIATE MATERIALS USED IN THE CONSTRUCTION OF THIS PROJECT.

2. CEMENT: ASTM C150, TYPE I OR III (TYP., U.N.O.; SEE BELOW)
- ASTM C150; TYPE II FOR CONCRETE IN CONTACT WITH EARTH

- 3.CONCRETE: CONCRETE SHALL HAVE THE FOLLOWING ENGINEERING PROPERTIES
- a. COMPRESSIVE STRENGTH, W/C RATIO & UNIT WEIGHT

LOCATION	f'c @ 28 DAYS (PSI)	w/c (MAX PERMITTED)
ALL FOUNDATION CONCRETE, U.N.O.	4500	0.45
DRILLED PIERS	3000	0.55
PILE CAPS	4500	0.45
GRADE BEAMS	4500	0.45
TOPPING SLABS	3000	0.55
SLABS-ON-GRADE (TYP. U.N.O.)	3000	0.55
SLAB-ON-GRADE (PARKING)	4500	0.45
WALLS (OTHER THAN SHEAR WALLS)	4500	0.50
FRAMED SLABS AND BEAMS	5000	0.40
COLUMNS	SEE COL. SCHED.	0.40
SHEAR WALLS	5000	0.40
STRUCTURAL PRECAST**	5000(MIN.)	0.40
CAST-IN-PLACE CONCRETE PLACED ON PRECAST FRAMING (WASHES, TOPPING SLABS AND POUR STRIPS)	5000	0.40
POURABLE FILL & MUD SLABS	1000	N/A

* NOTE: LIGHTWEIGHT CONCRETE SHALL HAVE A 115 PCF DRY UNIT WEIGHT (+/-3PCF)

**NOTE: REQUIRED COMPRESSIVE STRENGTH OF STRUCTURAL PRECAST CONCRETE SHALL BE DETERMINED BY THE PRECAST CONCRETE MANUFACTURER'S ENGINEER. MINIMUM PERMITTED COMPRESSIVE STRENGTH = 5000 PSI.

- b. AIR ENTRAINMENT:
1. CONCRETE LISTED IN TABLE "A" SHALL BE AIR ENTRAINED WITH THE APPROPRIATE PERCENTAGE AIR CONTENT LISTED IN TABLE "B" AS APPLICABLE FOR THE INDICATED EXPOSURE CLASS AND NOMINAL MAXIMUM AGGREGATE SIZE IN THE CONCRETE MIX. THE REQUIRED AIR CONTENT VALUE MAY BE REDUCED BY 1% FOR ALL CONCRETE WITH COMPRESSIVE STRENGTH GREATER THAN 5,000 PSI. THE PERMITTED TOLERANCE ON THE REQUIRED AIR CONTENT IS ±1.5 PERCENT. SEE ACI 318 FOR ADDITIONAL REQUIREMENTS.

2. ALL LIGHTWEIGHT CONCRETE SHALL HAVE 4% TO 7% AIR ENTRAINMENT.
3. INCREASE AIR ENTRAINMENT IF REQUIRED TO CONFORM TO U.L. REQUIREMENTS TO ACHIEVE REQUIRED FIRE RESISTANCE RATINGS.

LOCATION	EXPOSURE CLASS**	TABLE "B" NOMINAL MAXIMUM AGGREGATE SIZE		
		F1	F2 & F3	
FOUNDATION CONCRETE	F2			
PARKING LEVEL SLABS	F3	3/8"	6%	7.5%
PARKING LEVEL WALLS & COLUMNS	F1	1/2"	5.5%	7%
FLOOR FRAMING ON LEVEL BETWEEN LINES - , - , - AND -	F3	3/4"	5%	6%
COLUMNS BELOW LEVEL	F1	1"	4.5%	6%
WALLS BELOW LEVEL	F1			

** REFER TO ACI 318

* % AIR ENTRAINMENT SHALL CONFORM TO U.L.RATING REQUIREMENTS FOR FIRE RESISTANCE RATINGS

REQUIRED NOMINAL MAXIMUM COARSE AGGREGATE SIZE:	
CONCRETE ELEMENT	REQUIRED NOMINAL MAXIMUM COARSE AGGREGATE SIZE*
ALL CONCRETE, U.N.O.	1"
VOIDED FILIGREE SLABS	3/4"
TOPPING SLABS LESS THAN 3" THK.	3/8"

*SMALLER NOMINAL MAXIMUM COARSE AGGREGATE SIZE SHALL BE USED WHERE REQUIRED PER ACI 318.

- d. COMBINED AGGREGATE GRADING:
- 8% TO 22% (BY WEIGHT) OF AGGREGATE SHALL BE RETAINED ON EACH SIEVE BELOW THE MAXIMUM AGGREGATE SIZE SIEVE AND ABOVE THE #100 SIEVE.

4.REINFORCING STEEL:

DEFORMED REINFORCING BARS #10 AND SMALLER	ASTM A615, GRADE 60
#11 AND LARGER	ASTM A615, GRADE 75
DEFORMED REINFORCING BARS	ASTM A615, GRADE 60
WELDABLE DEFORMED REINF. BARS	ASTM A706
WELDED WIRE REINFORCEMENT (W.W.R.)	ASTM A185
EPOXY COATED REINF. BARS	ASTM A775
REINFORCING STEEL MECHANICAL SPLICE COUPLERS	LENTON SPLICE COUPLERS OR APPROVED EQUAL CAPABLE OF DEVELOPING 125%xFy IN TENSION OR COMPRESSION
REINFORCING STEEL HEADED DEFORMED BAR ANCHORS	LENTON TERMINATOR BAR ANCHORS OR APPROVED EQUAL CAPABLE OF DEVELOPING 125%xFy IN TENSION OR COMPRESSION
DOWELING ADHESIVE FOR ANCHORING REINF. STEEL INTO EXISTING CONCRETE	HILTI HIT HY 200 SAFE SET SYSTEM WITH HOLLOW DRILL BIT, OR HILTI HIT RE 500 SD SYSTEM
DEFORMED BAR ANCHORS (DBA ANCHORS)	NELSON D2L DEFORMED BAR ANCHORS (ASTM A496) INSTALLED WITH NELSON ELECTRIC-ARC STUD WELDING GUN
HEADED STEEL STUD SHEAR REINFORCING ("STUDRAILS")	ASTM A1044 SHEAR REINFORCEMENT; DECON "STUDRAILS" (MFR. BY DECON USA) OR "DSA RAILS" (MFR. BY PEIKKO GROUP)

EPOXY COAT THE REINFORCING STEEL WHERE INDICATED AND AT FOLLOWING LOCATIONS:

- 1.LEVELS _____ BETWEEN LINES _____, _____ AND _____:
- EPOXY COAT THE FOLLOWING:
- a. ALL REINFORCING STEEL IN SLABS
- b. ALL TOP STEEL IN BEAMS AND ALL BEAM STIRRUPS
- c. ALL COLUMN TIES FROM BOTTOM OF SLAB TO 4'-0" ABOVE TOP OF SLAB.
2. LEVELS _____ BETWEEN LINES _____, _____ AND _____
- EPOXY COAT THE FOLLOWING:
- a. ALL REINFORCING STEEL IN SLABS, BEAMS AND WALLS.
- b. ALL COLUMN TIES

WHERE EPOXY COATED REINFORCING STEEL IS SPECIFIED, PROVIDE PLASTIC COATED TIE WIRE AND EPOXY COATED SUPPORT BARS, CHAIRS, SLAB BOLSTERS AND OTHER ACCESSORIES TO SUPPORT THE REINFORCING STEEL AND P.T. TENDONS.

5. STRUCTURAL STEEL:

W SHAPES	ASTM A992	Fy = 50 KSI
CHANNELS, ANGLE, PLATES & BARS	ASTM A36 (Fy=36 ksi) U.N.O.	
ROUND PIPE	ASTM A572, GR 50 WHERE INDICATED	
SQUARE & RECTANGULAR HSS's	ASTM A53, GRADE "B"	Fy = 35 KSI
WELDING ELECTRODES	ASTM A500, GRADE "C"	Fy = 50 KSI
	AWS A5.1 OR A5.5, E70XX	

ABBREVIATIONS USED ON STRUCTURAL DRAWINGS					
AFF ADD'L	ABOVE FINISHED FLOOR	FDN FIN	FOUNDATION FINISH or FINISHED	PERP PC	PERPENDICULAR PRECAST
L ARCH	ADDITIONAL ANGLE ARCHITECTURAL / ARCHITECT	fk FLOOR	FOOT-KIPS	PL PLATE	POST-TENSIONED or PRESERVATIVE-TREATED
BET	BETWEEN	FL FULL LENGTH	FAR SIDE	PLF PLF	POUNDS PER LINEAR FOOT
BSMT	BASEMENT	FS FEET	FEET	PSI POUNDS PER SQUARE INCH	
BM BEAM	BEARING	FT FT	FOOTING	PSF POUNDS PER SQUARE FOOT	
BRG BS	BOTH SIDES	FTG		PSL PARALLEL STRAND LUMBER	
B or BOT	BOTTOM	GALV GA	GALVANIZED GAUGE or GAGE	REINF REIN	REINFORCING or REINFORCE
BB BOTTOMMOST BOTTOM	BOTTOMMOST BOTTOM	HGR HANGER	HANGER	REQ'D REQUIRED	ROUGH JOINT
BOD BOD	BOTTOM OF DECK BUILDING	HT HEIGHT	HIGH POINT	RJ	
BLDG		HK HOOK	HORIZONTAL	SCHED SCHED	SCHEDULE
CANT	CANTILEVER	H or HOR		SECT SECT	SECTION
CIP CAST-IN-PLACE	CAST-IN-PLACE	IN IN	INCHES	SW SW	SHORT WAY
CFS COLD-FORMED STEEL	COLD-FORMED STEEL	ID INSIDE DIAMETER		SIM SIM	SIMILAR
CL CENTER LINE	CENTER LINE	INT INTERIOR		SOG SLAB ON GRADE	
CLR CLEAR	CLEAR	INV INVERT		SL SLOPED	
COL COLUMN	COLUMN			SP SPACES	
CONC CONCRETE	CONCRETE			SQ SQUARE	
CMU CONCRETE MASONRY UNIT	CONCRETE MASONRY UNIT	JT JOINT		STD STANDARD	
CONN CONNECTION	CONNECTION	k KIPS		STIFF STIFF	
CONST CONSTRUCTION	CONSTRUCTION	LW LIGHTWEIGHT		STRUT STRUCTURAL	
CONT CONTINUOUS	CONTINUOUS	LG LONG		SSOG STRUCTURAL SLAB ON GRADE	
CJ CONTROL JOINT	CONTROL JOINT	LLH LONG LEG HORIZONTAL		SYM SYMMETRICAL	
CI CUBIC YARD	CUBIC YARD	LLV LONG LEG VERTICAL			
D or DP	DEEP / DEPTH	LSH LONG SIDE HORIZONTAL		TEMP T	TEMPORARY/TEMPERATURE
DET DETAIL	DETAIL	LP LONG WAY		T&B TOP & BOTTOM	
DIA DIAMETER	DIAMETER	LVL LAMINATED VENEER LUMBER		TLS TENSION LAP SPLICE	
DIM DIMENSION	DIMENSION	LVL LAMINATED VENEER LUMBER		TOB TOP OF BEAM	
DIR DIRECTION	DIRECTION	LSL LAMINATED STRAND LUMBER		TOC TOP OF CONCRETE	
do or (")	DITTO			TOS TOP OF STEEL	
DBL DOUBLE	DOUBLE	MO MASONRY OPENING		TOW TOP WALL	
DN DOWN	DRAWING or DRAWINGS	MECH MECHANICAL		TT TYPICAL	
EA EACH	EACH	MEP MECHANICAL, ELECTRICAL AND PLUMBING		TG TRANSFER GIRDER	
EE EACH END	EACH END	NS NEAR SIDE		UNO UNLESS NOTED OTHERWISE	
EF EACH FACE	EACH FACE	NTS NOT TO SCALE		VIF VERIFY IN FIELD	
EW EACH WAY	EACH WAY	NO or # NUMBER		VERT VERTICAL	
EOD EDGE OF DECK	EDGE OF DECK	NW NORTH WEST			
EOS ELEVATION	ELEVATION	OC ON CENTER		WS WATERSTOP	
EL EMBED	EMBEDMENT	OD OPENING		WWF WELDED WIRE FABRIC	
EQ EQUAL	EQUAL	OPNG OUTSIDE DIAMETER		WWR WELDED WIRE REINFORCEMENT	
EJ EXISTING	EXISTING	OF OUTSIDE FACE		w/ WITH	
EJ EXPANSION JOINT	EXPANSION JOINT			WP WORK POINT	

STRUCTURAL DRAWING LIST		
DWG. NO.	DRAWING TITLE	
S000	GENERAL NOTES	•
S001	GENERAL NOTES	•
S002	GENERAL NOTES	•
S003	LOAD MAPS	•
S010	3D VIEWS	•
S100A	RESIDENTIAL FOUNDATION PLAN	•
S100B	GARAGE FOUNDATION PLAN	•
S101A	LEVEL 2 FRAMING PLAN	•
S101B	GARAGE LEVEL 2 FRAMING PLAN	•
S102A	LEVEL 3 FRAMING PLAN	•
S102B	GARAGE LEVEL 3 FRAMING PLAN	•
S103A	LEVEL 4 FRAMING PLAN	•
S103B	GARAGE LEVEL 4 FRAMING PLAN	•
S104A	ROOF FRAMING PLAN	•
S104B	GARAGE ROOF FRAMING LEVEL	•
S200	TYPICAL DETAILS	
S201	TYPICAL DETAILS	
S202	TYPICAL DETAILS	•
S203	TYPICAL DETAILS	•
S204	TYPICAL DETAILS	•
S205	TYPICAL DETAILS	•
S206	TYPICAL DETAILS	•
S207	TYPICAL DETAILS	•
S208	TYPICAL DETAILS	•
S209	TYPICAL DETAILS	•
S300	Unnamed	
S301	Unnamed	
S302	Unnamed	
S303	Unnamed	
S400	COLUMN SCHEDULE	
S401	Unnamed	
S402	Unnamed	
S403	Unnamed	
S404	Unnamed	

1003

OOMBRA PROJECT #

2827 JOHN R STREET

DETROIT MI 48201

OWNER

6. POST-INSTALLED ANCHORS

ADHESIVE ANCHORS INTO CONCRETE	HILTI HIT HY 200 SAFE SET WITH HILTI HIT Z-ROD OR HILTI HIT HY 200 SAFESST W/ HOLLOW DRILL BIT W/ HILTI HAS- E THREADED ROD OR HILTI HIT RE 500 SD W/ HILTI HAS -E THREADED ROD
ADHESIVE ANCHORS IN SOLID MASONRY: GROUT FILLED CONCRETE BLOCK AND SOLID BRICK	HILTI HIT HY 70 SYSTEM w/ HAS-E THREADED ROD
ADHESIVE ANCHORS INTO HOLLOW MASONRY: CONCRETE BLOCK, HOLLOW BRICK AND MULTI-WYTHE BRICK WALL	HILTI HIT HY 70 SYSTEM WITH HILTI HAS-E THREADED ROD AND APPROPRIATE SCREEN TUBE

- a. ALTERNATIVE ANCHORS MAY BE USED IF APPROVED IN WRITING BY THE STRUCTURAL ENGINEER. THE CONTRACTOR SHALL SUBMIT CALCULATIONS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROJECT'S JURISDICTION VERIFYING THAT PROPOSED ALTERNATIVE ANCHORS WILL PROVIDE THE SAME OR GREATER LOAD CARRYING CAPACITY AS THE SPECIFIED ANCHORS. THE CONTRACTOR SHALL SUBMIT ICC ESR REPORTS. EACH ANCHOR CONFIGURATION SHALL BE EVALUATED AND COMPARED TO THE SPECIFIED ANCHOR.

- b. ALL ANCHORS SHALL ASSUME THE CRACKED CONCRETE DESIGN CONDITION, U.N.O.

- c. POST-INSTALLED ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII).

- d. THE CONTRACTOR SHALL ARRANGE FOR AN ANCHOR MANUFACTURER'S REPRESENTATIVE TO PROVIDE ON SITE INSTALLATION TRAINING FOR EACH SPECIFIED ANCHOR TYPE. THE STRUCTURAL ENGINEER OF RECORD SHALL RECEIVE DOCUMENTATION VERIFYING THAT ALL OF THE CONTRACTOR'S PERSONNEL WHO INSTALL ANCHORS HAVE BEEN TRAINED PRIOR TO COMMENCEMENT OF INSTALLING ANCHORS.

- e. INSTALLATION OF ADHESIVE ANCHORS SHALL BE PERFORMED BY PERSONNEL CERTIFIED BY AN APPROVED CERTIFICATION PROGRAM. CERTIFICATION SHALL INCLUDE WRITTEN AND PERFORMANCE TESTS IN ACCORDANCE WITH THE ACI/CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM OR EQUIVALENT. THE ACCEPTABILITY OF CERTIFICATIONS OTHER THAN THE ACI/CRSI ADHESIVE INSTALLER CERTIFICATION WILL BE DETERMINED BY THE STRUCTURAL ENGINEER OF RECORD.

- f. CONCRETE SHALL HAVE ACHIEVED DESIGN STRENGTH PRIOR TO INSTALLING POST-INSTALLED ANCHORS. ADHESIVE ANCHORS SHALL BE INSTALLED IN CONCRETE THAT HAS CURED FOR A MINIMUM OF 21 DAYS.

- g. ANCHOR CAPACITY IS DEPENDENT UPON SPACING BETWEEN ANCHORS AND PROXIMITY OF ANCHORS TO EDGES OF CONCRETE OR MASONRY. INSTALL ANCHORS IN ACCORDANCE WITH SPACING AND EDGE CLEARANCES INDICATED ON THE DRAWINGS.

- h. POST-INSTALLED ANCHORS SHALL BE INSTALLED IN A MANNER THAT DOES NOT DAMAGE REINFORCING STEEL. REINFORCING STEEL SHALL BE LOCATED BY NON-DESTRUCTIVE MEANS PRIOR TO DRILLING HOLES. PLATES AND BRACKETS THROUGH WHICH ANCHORS WILL BE INSTALLED SHALL NOT BE FABRICATED UNTIL AFTER REINFORCING STEEL IS LOCATED AND ANCHOR LOCATIONS ARE ADJUSTED. CONTRACTOR SHALL NOTIFY STRUCTURAL ENGINEER TO OBTAIN ALTERNATIVE ANCHOR LAYOUT WHERE ANCHORS MUST BE RELOCATED TO AVOID INTERFERENCE WITH REINFORCING STEEL.

- i. ADHESIVE ANCHORS SHALL BE INSTALLED WITH A 6" EMBEDMENT DEPTH UNLESS NOTED OTHERWISE. ANCHORS OTHER THAN ADHESIVE ANCHORS SHALL BE INSTALLED WITH AN EMBEDMENT DEPTH EQUAL TO THE MAXIMUM EMBEDMENT DEPTH NOTED IN THE MANUFACTURER'S PRODUCT TECHNICAL GUIDE UNLESS NOTED OTHERWISE. WHERE EMBEDMENT DEPTH IS SPECIFIED, THAT DEPTH IS THE REQUIRED FINAL EFFECTIVE MINIMUM EMBEDMENT DEPTH.

- j. POST INSTALLED ANCHORS SHALL BE INSPECTED PERIODICALLY DURING INSTALLATION PER CHAPTER 17 OF IBC____, UNLESS NOTED OTHERWISE.

- k. ADHESIVE ANCHORS INSTALLED IN VERTICAL SURFACES OR IN OVERHEAD OR UPWARDLY INCLINED ORIENTATIONS SHALL BE CONTINUOUSLY INSPECTED DURING INSTALLATION PER ACI 318.

- l. INSPECTIONS SHALL BE PERFORMED BY A SPECIAL INSPECTOR WHO HAS BEEN APPROVED BY THE BUILDING OFFICIAL. THE SPECIAL INSPECTOR SHALL VERIFY THAT ALL ANCHORS WERE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, THE APPLICABLE ICC ESR REPORTS AND THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS. THE INSPECTION SHALL INCLUDE VERIFICATION OF ANCHOR SPACING, EMBEDMENT AND EDGE DISTANCE REQUIREMENTS.

7. WOOD FRAMING:

- a. TIMBER (SAWN LUMBER):
ALL SAWN LUMBER SHALL HAVE 19% MAX. MOISTURE CONTENT AND SHALL BE SURFACE DRY IN THE FOLLOWING SPECIES AND GRADES:

FRAMING	SPECIES	GRADE
STUDS	SPRUCE-PINE-FIR	NO. 2
BEAMS, HEADERS & ALL OTHER FRAMING	HEM-FIR	NO. 2

- b. LAMINATED VENEER LUMBER:
TRUS JOIST MICROLAM LVL'S MANUFACTURED BY WEYERHAEUSER
BEAMS: GRADE 1.9; E = 1,900,000 PSI; Fb = 2,600 PSI; Fv = 285 PSI

- c. PARALLEL STRAND LUMBER:
PARALLAM PSL AS MANUFACTURED BY ILEVEL BY WEYERHAEUSER
BEAMS: GRADE 2.0E; E = 2,000,000 PSI; Fb = 2,900 PSI; Fv = 290 PSI
COLUMNS: GRADE 1.8E; E = 1,800,000 PSI; Fb = 2,400 PSI; Fv = 190 PSI

- d. LAMINATED STRAND LUMBER:
TRUS JOIST TIMBERSTRAND LSL'S MANUFACTURED BY WEYERHAEUSER
BEAMS/COLUMNS: GRADE 1.3E; E=1,300,000 PSI; Fb=1,700 PSI; Fv=400 PSI

- e. PRESERVATIVE TREATED PARALLEL STRAND LUMBER
TRUS JOIST PARALLAM PLUS PSL'S MANUFACTURED BY WEYERHAEUSER
SERVICE LEVEL "SL 2"
BEAMS: E = 1,460,000 PSI; Fb = 1827 PSI; Fv = 197 PSI
COLUMNS: E = 1,314,000 PSI; Fb = 1512 PSI; Fv = 120 PSI

- f. FLOOR, ROOF AND WALL SHEATHING:
APA PERFORMANCE-RATED PANELS
FLOOR SHEATHING: 23/32" THK STURD-I-FLOOR, TONGUE & GROOVE EDGES, EXPOSURE 1, 24"OC
ROOF SHEATHING: 19/32" THK, EXPOSURE 1, SPAN RATING 40/20
WALL SHEATHING: 15/32" THK, EXPOSURE 1, SPAN RATING 32/16

- g. NAILS: ALL NAILS SHALL BE COMMON NAILS, U.N.O.

- h. STRUCTURAL CONNECTORS:
STRUCTURAL CONNECTORS FOR WOOD CONSTRUCTION MANUFACTURED BY SIMPSON STRONG-TIE COMPANY.

- i. STRUCTURAL GLUED LAMINATED TIMBER:
MINIMUM REQUIREMENTS:
GRADE 24F-V5, SP/SP; Fbx = 2400 PSI; Fcx = 740 PSI; Fvx = 300 PSI
Ex = 1,700,000 PSI; Fc = 1650 PSI; E axial = 1,600,000 PSI

F. CONSTRUCTION:

1. GENERAL:

- a. THE CONTRACTOR IS RESPONSIBLE FOR SITE SAFETY. THE CONTRACTOR AND ALL SUBCONTRACTORS SHALL REVIEW THE STRUCTURAL CONTRACT DOCUMENTS AND SHALL NOTIFY THE STRUCTURAL ENGINEER OF ANY CONFLICTS BETWEEN THOSE DOCUMENTS AND ANY SAFETY REGULATIONS. SUCH REVIEW AND NOTIFICATION SHALL OCCUR PRIOR TO PRODUCTION OF SHOP DRAWINGS.

- b. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING ALLOWABLE CONSTRUCTION LOADS, FOR PROTECTING THE COMPLETED STRUCTURAL FRAMING FROM DAMAGE DUE TO TEMPORARY CONSTRUCTION LOADINGS, FOR DETERMINING SEQUENCES OF CONSTRUCTION, AND FOR DETERMINATION, DESIGN AND INSTALLATION OF ALL FALSEWORK, FORMWORK, STAGING, TEMPORARY BRACING, SHEETING AND SHORING NECESSARY FOR CONSTRUCTION.

- c. REPRODUCTION OF THE STRUCTURAL DRAWINGS FOR USE IN PREPARATION OF SHOP DRAWINGS IS PROHIBITED. SHOP DRAWINGS SO PRODUCED WILL BE REJECTED.

- d. ALL SUBMITTALS, INCLUDING SHOP DRAWINGS SHALL BE SUBMITTED ELECTRONICALLY IN PDF FORMAT.

- e. SUBMIT SHOP DRAWINGS 15 BUSINESS DAYS (MINIMUM) PRIOR TO DATE THAT RETURNED SHOP DRAWINGS ARE REQUIRED. SHOP DRAWINGS SHALL BEAR THE CONTRACTOR'S STAMP OF APPROVAL WHICH SHALL CONSTITUTE CERTIFICATION THAT HE HAS VERIFIED ALL FIELD MEASUREMENTS, CONSTRUCTION CRITERIA, MATERIALS AND SIMILAR DATA AND HAS CHECKED EACH DRAWING FOR COMPLETENESS, COORDINATION AND COMPLIANCE WITH THE CONTRACT DOCUMENTS. SCHEDULING OF SUBMITTALS SHALL BE PLANNED SO THAT THE NUMBER OF DRAWINGS REQUIRED TO BE REVIEWED BY THE STRUCTURAL ENGINEER DOES NOT EXCEED THE FOLLOWING:

REINFORCING STEEL PLACING DRAWINGS: 25 SHEETS PER WEEK
STRUCTURAL PRECAST SHOP DRAWINGS: 50 SHEETS PER WEEK

- f. COSTS OF INVESTIGATION AND/OR REDESIGN DUE TO CONTRACTOR ERRORS WILL BE AT THE CONTRACTOR'S EXPENSE.

- g. CONTRACTOR SHALL REFER TO ARCHITECTURAL, MECHANICAL, PLUMBING, ELECTRICAL, LAUNDRY AND FOOD SERVICE DRAWINGS FOR SIZE AND LOCATIONS OF OPENINGS, SLEEVES, CONCRETE HOUSEKEEPING PADS, INSERTS, AND DEPRESSIONS.

- h. SEE ARCHITECTURAL DWGS. AND SPECIFICATIONS FOR FINISHES AND FIREPROOFING.

- i. TOPS OF ALL MASONRY PARTITION WALLS SHALL BE CONNECTED TO THE UNDERSIDE OF THE STRUCTURAL FRAMING PER THE DETAILS PROVIDE ON THE STRUCTURAL DRAWINGS. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF ALL SUCH WALLS.

- j. PROVIDE SLIP CONNECTIONS BETWEEN UNDERSIDE OF FLOOR FRAMING AND TOPS OF ALL PARTITION WALLS THAT CONNECT TO THE UNDERSIDE OF THE STRUCTURAL FRAMING. SLIP CONNECTIONS SHALL PERMIT VERTICAL DIFFERENTIAL DEFLECTION TO OCCUR BETWEEN THE PARTITION WALLS AND STRUCTURAL FRAMING WHILE BRACING THE TOP OF THE WALLS FOR THE CODE SPECIFIED LATERAL LOAD. MAGNITUDE OF ANTICIPATED DIFFERENTIAL DEFLECTION = L/240 (WHERE L= SPAN OF FLOOR FRAMING MEMBER ABOVE.)

- k. VERTICAL SHORTENING OF THE BUILDING DUE TO SHRINKAGE OF THE WOOD FRAMING AND CONSOLIDATION SHALL BE CONSIDERED IN THE DESIGN AND DETAILING OF ALL ARCHITECTURAL SYSTEMS AND COMPONENTS, ALL MECHANICAL, ELECTRICAL AND PLUMBING SYSTEMS AND ALL OTHER BUILDING SYSTEMS INCLUDING ELEVATORS, STAIRS AND FACADE SYSTEMS. ALL SUCH COMPONENTS AND SYSTEMS SHALL BE DESIGNED AND DETAILED TO ACCOMMODATE THE FOLLOWING VERTICAL SHORTENING MOVEMENTS:

1. SHORTENING PER FLOOR = 0.5"
2. CUMULATIVE TOTAL SHORTENING AT EACH FLOOR
LEVEL 2: 0.5"
LEVEL 3: 1"
LEVEL 4: 1.5"
LEVEL 5: 2"

- l. CONTRACTOR IS RESPONSIBLE FOR DESIGN OF THE FOLLOWING ITEMS INCLUDING DESIGN OF THE CONNECTIONS AND EMBEDDED STEEL CONNECTION ELEMENTS (EMBEDS) OF EACH TO THE SUPPORTING STRUCTURAL FRAMING:

- METAL STAIRS
- HANDRAILS AND GUARDRAILS
- NON-BEARING METAL STUD PARTITION WALLS
- CURTAINWALL SYSTEMS
- FACADE PANELS AND ALL FACADE COMPONENTS
- SAFETY TIE-BACK SYSTEMS
- WINDOW WASHING DAVITS

CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND DESIGN CALCULATIONS FOR EACH ITEM. SHOP DRAWINGS AND DESIGN CALCULATIONS SHALL BE SIGNED AND SEALED BY THE CONTRACTOR'S ENGINEER(S) WHO SHALL BE REGISTERED IN THE PROJECT'S JURISDICTION. DRAWINGS AND CALCULATIONS SHALL SHOW LOCATIONS AND MAGNITUDE OF LOADS IMPOSED ON STRUCTURE AT THE CONNECTIONS. CONTRACTOR SHALL DESIGN AND FURNISH ALL EMBEDS AND HARDWARE NEEDED FOR CONNECTION OF THESE ITEMS TO THE STRUCTURAL FRAMING. CONNECTIONS TO CONCRETE SHALL BE DESIGNED IN ACCORDANCE WITH ACI 318, ASSUMING THAT ANCHOR REINFORCEMENT AND SUPPLEMENTARY REINFORCING STEEL NOT PRESENT. EMBEDS SHALL BE DESIGNED AND DETAILED TO AVOID INTERFERENCE WITH REINFORCING STEEL AND OTHER ITEMS IN THE CONCRETE. IF INTERFERENCES BETWEEN EMBEDS AND ITEMS IN THE CONCRETE OCCUR DURING CONSTRUCTION, THE CONTRACTOR SHALL NEITHER ALTER THE EMBEDS NOR MOVE ANYTHING IN THE CONCRETE UNLESS SPECIFICALLY AUTHORIZED BY THE ENGINEER OF RECORD.

- m. DESIGN FRAMING MEMBERS IN COMMUNICATING STAIRS AND MONUMENTAL STAIRS TO LIMIT LIVE LOAD DEFLECTION TO THE SMALLER OF L/600 OR 1/4". SIZE STAIR FRAMING MEMBERS TO PROVIDE A STAIR ASSEMBLY WITH A NATURAL FREQUENCY > 5 HERTZ AND PEAK ACCELERATION, ap/g LESS THAN OR EQUAL TO 0.015 AS COMPUTED PER AISC DESIGN GUIDE 11 EQUATION 2.3 USING INDOOR FOOTBRIDGE CRITERIA.

- n. DESIGN AND DETAILING OF THE FACADE SYSTEM AND FACADE SYSTEM CONNECTIONS TO THE STRUCTURE SHALL TAKE INTO CONSIDERATION THE FOLLOWING MOVEMENTS:

1. ±1/2" VERTICAL DIFFERENTIAL DEFLECTION OF SLAB EDGES ON ADJACENT FLOORS
2. ±1/2" HORIZONTAL DIFFERENTIAL DEFLECTION BETWEEN ADJACENT FLOORS IN ANY DIRECTION.
3. DIFFERENTIAL THERMAL EXPANSION / CONTRACTION BETWEEN FACADE SYSTEM AND SUPPORTING PRIMARY STRUCTURAL SYSTEM.

- o. THE FACADE SHALL NOT BE INSTALLED UNTIL AFTER THE SUPERSTRUCTURE HAS BEEN PLUMBED, ALL FRAMING CONNECTIONS HAVE BEEN INSTALLED AND ALL SHORES AND RESHORES HAVE BEEN REMOVED.

- p. WHERE STRUCTURAL STEEL HORIZONTAL GIRTS ARE PROVIDED, THOSE GIRTS MAY BE USED ONLY TO RESIST LATERAL LOADS FROM THE FACADE. VERTICAL LOADS MAY NOT BE IMPOSED BY THE FACADE UPON THE GIRT FRAMING UNLESS THE SECTIONS AND DETAILS ON THE STRUCTURAL DRAWINGS SPECIFICALLY INDICATE THAT FACADE GRAVITY LOAD CONNECTIONS MAY BE MADE TO THE GIRTS.

- q. DESIGN, DETAILING, FABRICATION AND INSTALLATION OF BRACKETS, STRUTS, CLIPS AND OTHER CONNECTORS REQUIRED FOR ATTACHMENT OF ELEVATOR GUIDE RAILS TO THE STRUCTURE IS THE RESPONSIBILITY OF THE ELEVATOR MANUFACTURER.

- r. IF DIFFERENCES OCCUR WITHIN OR BETWEEN THE DRAWINGS AND SPECIFICATIONS REGARDING MATERIALS, SIZES, STRENGTHS OR QUANTITIES, THEN THE BETTER MATERIAL, HIGHER STRENGTH, LARGER SIZE AND GREATER QUANTITY INDICATED, SPECIFIED OR NOTED SHALL BE PROVIDED.

- s. CONTRACTOR SHALL SUBMIT A SINGLE DIMENSIONED AND COORDINATED DRAWING FOR EACH LEVEL SHOWING THE LOCATIONS OF THE FOLLOWING:

- SLAB OPENINGS
- SLEEVES (CAST IN PLACE & POST-INSTALLED FIELD CORED SLEEVES)
- EMBEDDED PLATES AND ALL OTHER EMBEDS
- SLAB EMBEDDED ELECTRICAL CABLE AND CONDUIT

- t. CONTRACTOR SHALL SUBMIT FOR REVIEW DIMENSIONED AND COORDINATED DRAWINGS FOR EACH LEVEL SHOWING THE LOCATIONS, CONNECTION DETAILS AND MAGNITUDES OF LOADS IMPOSED ONTO THE PRIMARY STRUCTURAL SYSTEM FROM PIPE SUPPORTS AND SUSPENDED MECHANICAL AND ELECTRICAL LOADS EXCEEDING 500 POUNDS.

- u. PROVIDE TEMPORARY BLOCKOUTS AND TEMPORARY OPENINGS IN THE STRUCTURE AS REQUIRED TO PERMIT INSTALLATION OF ALL WORK. BLOCKOUTS AND TEMPORARY OPENINGS SHALL BE LOCATED, CONFIGURED, DETAILED AND INFILLED IN A MANNER THAT ALTERS NEITHER THE STRENGTH OF THE STRUCTURAL FRAMING NOR THE STRENGTH OF THE CONNECTIONS. INFILL ALL BLOCKOUTS AND TEMPORARY OPENINGS USING THE MATERIALS SPECIFIED FOR THE FRAMING AT THE LOCATIONS WHERE THE BLOCKOUTS AND OPENINGS OCCUR. SUBMIT DRAWINGS INDICATING THE LOCATIONS, DIMENSIONS AND DETAILS OF ALL PROPOSED BLOCKOUTS AND OPENINGS AND DETAILS INDICATING THE MANNER IN WHICH THE BLOCKOUTS AND OPENINGS WILL BE INFILLED.

- v. THE EXACT WEIGHTS, DIMENSIONS AND LOCATIONS OF ALL MECHANICAL UNITS SUPPORTED ON STRUCTURAL STEEL FRAMING SHALL BE DETERMINED AND COORDINATED BY THE CONTRACTOR PRIOR TO DETAILING THE STRUCTURAL STEEL FRAMING SUPPORTING THOSE UNITS. IF THE UNIT WEIGHTS ARE GREATER THAN THE WEIGHTS SHOWN ON THE STRUCTURAL DRAWINGS THE STRUCTURAL ENGINEER SHALL BE NOTIFIED PRIOR TO DETAILING THE STRUCTURAL STEEL. UNIT WEIGHTS, DIMENSIONS AND LOCATIONS SHOWN ON THE STRUCTURAL DRAWINGS ARE APPROXIMATE ONLY AND SHALL NOT BE USED FOR DETAILING THE STRUCTURAL STEEL.

- w. ELEVATOR OPENING DIMENSIONS, PIT DEPTHS, LOCATIONS OF STRUCTURAL FRAMING, OVERHEAD CLEARANCES AND MACHINERY SUPPORT REQUIREMENTS RELATED TO THE ELEVATORS SHALL BE VERIFIED AND COORDINATED BY THE CONTRACTOR PRIOR TO AWARDING CONTRACTS FOR STRUCTURAL STEEL AND CAST-IN-PLACE CONCRETE. INFORMATION SHOWN ON THE STRUCTURAL DRAWINGS IS BASED ON INFORMATION AVAILABLE DURING DESIGN AND MAY VARY FROM REQUIREMENTS FOR ELEVATORS PURCHASED, FRAMING, DIMENSIONS, AND DETAILS MAY REQUIRE REVISIONS. COSTS ASSOCIATED SUCH REVISIONS SHALL BE INCLUDED IN BID PRICE.

- x. DIMENSIONS MAY NOT BE SCALED FROM THE DRAWINGS.

- y. ALL CONSTRUCTION IS NEW UNLESS IDENTIFIED AS EXISTING "(E)". THE CONTRACTOR SHALL VERIFY ALL EXISTING BUILDING INFORMATION AND SHALL NOTIFY THE ARCHITECT AND STRUCTURAL ENGINEER OF ANY DISCREPANCIES PRIOR TO FABRICATION OF ANY STRUCTURAL COMPONENT. UNLESS INDICATED OTHERWISE, NEW SLABS ARE TO BE AT THE SAME ELEVATIONS AS ADJACENT EXISTING SLABS. FOUNDATION ELEVATIONS OR COLUMN LENGTHS SHALL BE ADJUSTED WITH THE APPROVAL OF THE STRUCTURAL ENGINEER TO ACHIEVE MATCHING SLAB ELEVATIONS.

- z. TYPICAL DETAILS ARE SHOWN ON THE STRUCTURAL DRAWINGS ON SHEETS TITLED "TYPICAL DETAILS". THE TYPICAL DETAILS INDICATE STRUCTURAL REQUIREMENTS OCCURRING THROUGHOUT THE STRUCTURE AT LOCATIONS IDENTIFIED BY THE DETAIL TITLES. THE CONTRACTOR IS RESPONSIBLE FOR REVIEWING THESE DETAILS, PROVIDING AND INSTALLING THE INDICATED STRUCTURAL ELEMENTS AND COMPONENTS INDICATED IN THE DETAILS, AND CONFORMING TO ALL OTHER REQUIREMENTS INDICATED ON THE DETAILS AT ALL LOCATIONS WHERE THE DETAILS APPLY.

- aa. INFORMATION SHOWN ON THE SECTIONS AND DETAILS IS THAT WHICH IS REQUIRED TO CONVEY THE PURPOSE FOR WHICH THE SECTIONS AND DETAILS WERE PROVIDED. THE CONTRACTOR IS RESPONSIBLE FOR REFERRING ELSEWHERE ON THE CONTRACT DOCUMENTS FOR ALL OTHER INFORMATION WHICH MAY BE OCCURRING IN THE SECTIONS OR DETAILS, BUT WHICH IS NOT SHOWN.

- ab. FACADES, PAVEMENT SLABS, DRAINS, CURBS AND OTHER NON-STRUCTURAL ELEMENTS INDICATED ON THE STRUCTURAL DRAWINGS ARE SHOWN FOR GENERAL INFORMATION ONLY. REFER ELSEWHERE FOR ALL INFORMATION, DETAILS, DIMENSIONS, LOCATIONS AND GEOMETRY OF NON-STRUCTURAL ELEMENTS, AND THE ATTACHMENT OF THOSE ELEMENTS TO THE STRUCTURAL FRAMING.

- ac. REFER TO THE ARCHITECTURAL DRAWINGS FOR TOP OF WALL ELEVATIONS FOR ALL WALLS WHERE TOP OF WALL ELEVATIONS ARE NOT INDICATED ON THE STRUCTURAL DRAWINGS.

- ad. COORDINATE FLOOR FINISH INCLUDING BUT NOT LIMITED TO "FLATNESS" AND "LEVELNESS" REQUIREMENTS WITH THE FLOOR FINISH CONTRACTOR. PROVIDE UNDERLAYMENT/TOPPING WHERE REQUIRED TO PROVIDE A SURFACE ACCEPTABLE FOR INSTALLATION OF FLOOR FINISHES. REFER TO THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

- ae. THE STRUCTURAL FRAMING WAS DESIGNED TO LIMIT THE DEFLECTION OF STRUCTURAL MEMBERS TO LESS THAN THE MAXIMUM PERMITTED DEFLECTIONS LISTED IN THE BUILDING CODE. THE CONTRACTOR SHALL COORDINATE THE WORK OF OTHER TRADES TO ACCOMMODATE THESE DEFLECTIONS AND TO ACCOMMODATE CONSTRUCTION TOLERANCES.

2. STABILITY DURING CONSTRUCTION

- a. LATERAL STRENGTH AND STABILITY OF THE COMPLETED STRUCTURE IS PROVIDED BY THE FOLLOWING STRUCTURAL SYSTEM:

LATERAL LOADS ARE RESISTED BY, AND LATERAL STABILITY OF THE STRUCTURE IS PROVIDED BY CONCRETE MOMENT FRAMES; FLOOR SLABS ARE DESIGNED AS HORIZONTAL DIAPHRAGMS TO COLLECT AND TRANSFER LATERAL LOADS TO AND BETWEEN MOMENT FRAMES AND TO BRACE ALL COLUMNS CONNECTED TO THE SLABS.

- b. THE CONTRACTOR SHALL DETERMINE, FURNISH AND INSTALL TEMPORARY BRACING REQUIRED TO PROVIDE AND MAINTAIN LATERAL STABILITY OF THE STRUCTURE UNTIL COMPLETION OF CONSTRUCTION OF ALL COMPONENTS OF THE LATERAL- LOAD-RESISTING SYSTEM.

3. INSPECTION AND TESTING:

- a. THE OWNER WILL ENGAGE A TESTING AGENCY TO PROVIDE SERVICES AS INDICATED BELOW AND SUBMIT REPORTS.

- b. CAST-IN-PLACE CONCRETE:

1. THE AGENCY SHALL INSPECT THE FORMWORK AND REINFORCING STEEL PLACEMENT FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS AND SHOP DRAWINGS.

2. THE AGENCY SHALL MONITOR PLACEMENT OF ALL CONCRETE TO VERIFY COMPLIANCE WITH ALL APPLICABLE ACI REQUIREMENTS.

3. THE AGENCY SHALL SAMPLE CONCRETE IN ACCORDANCE WITH ASTM C172 AND SHALL MOLD TEST CYLINDERS IN ACCORDANCE WITH ASTM C31.

4. THE FOLLOWING SETS OF TEST CYLINDERS SHALL BE MADE FOR EACH DAYS POUR OR FOR EACH 50 CUBIC YARDS OF CONCRETE PLACED (WHICHEVER YIELDS THE LARGER NUMBER OF TEST CYLINDERS):

2 SETS @ 7 DAYS, ONE SET LAB CURED, ONE SET FIELD CURED.
2 SETS @ 28 DAYS, ONE SET LAB CURED, ONE SET FIELD CURED.

5. THE AGENCY SHALL MAKE ADDITIONAL TESTS OF IN-PLACE CONCRETE AT THE CONTRACTOR'S EXPENSE WHEN TEST RESULTS INDICATE SPECIFIED CONCRETE STRENGTHS HAVE NOT BEEN ATTAINED, AS DIRECTED BY THE STRUCTURAL ENGINEER.

G. FOUNDATIONS & STRUCTURAL EARTHWORK:

1. GENERAL:

- a. REFER TO THE SPECIFICATIONS AND GEOTECHNICAL REPORT FOR REQUIREMENTS FOR EXCAVATION, FOR PREPARATION OF THE SUBGRADE BELOW THE FOUNDATIONS AND SLABS-ON-GRADE, FOR SUB-BASE REQUIREMENTS BELOW SLABS-ON-GRADE, FOR COMPACTION PROCEDURES AND FOR ALL OTHER GEOTECHNICAL REQUIREMENTS NOT SPECIFICALLY DELINEATED ON THE STRUCTURAL DRAWINGS. THE GEOTECHNICAL REPORT AND THE REQUIREMENTS CONTAINED THEREIN SHALL BE CONSIDERED PART OF THE CONTRACT DOCUMENTS.

- b. CONTRACTOR SHALL VERIFY ALL EXISTING FIELD CONDITIONS THAT MAY AFFECT THE INSTALLATION OF THE FOUNDATION SYSTEM AS SHOWN PRIOR TO STARTING WORK.

- c. FOUNDATIONS SHALL BE PLACED ON UNDISTURBED SOIL OR COMPACTED STRUCTURAL FILL. WHERE FOUNDATIONS BEAR ON ROCK, FOUNDATIONS SHALL BEAR ON THAT ROCK OR ON LEAN CONCRETE FILL. BEARING ELEVATIONS ARE ESTIMATED FROM SOIL BORING DATA INDICATED IN THE GEOTECHNICAL REPORT. DETERMINATION OF FINAL BEARING ELEVATIONS AND FIELD VERIFICATION OF ALLOWABLE BEARING PRESSURE SHALL BE MADE BY AN EXPERIENCED, QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO PLACING FOUNDATIONS.

- d. CONCRETE FOR FOUNDATIONS SHALL BE POURED ON THE SAME DAY SUBGRADE APPROVAL IS GIVEN BY THE GEOTECHNICAL ENGINEER.

- e. ALL FOUNDATIONS SHALL BEAR A MINIMUM OF 3'-0" BELOW GRADE. IN CASE OF CONFLICT, NOTIFY THE ARCHITECT AND STRUCTURAL ENGINEER IN ADVANCE OF ANY CONSTRUCTION TO ALLOW FOR ADJUSTMENT.

- f. UTILITY LINES SHALL NOT BE PLACED THROUGH OR BELOW FOUNDATIONS WITHOUT THE STRUCTURAL ENGINEER'S APPROVAL. BELOW GRADE UTILITY OR PIPE ELEVATIONS, WHERE SHOWN, ARE INDICATED FOR REFERENCE ONLY. REQUIRED ELEVATIONS SHALL BE DETERMINED BY OTHERS AND COORDINATED WITH THE FOUNDATIONS.

- g. THE SLOPE BETWEEN THE LOWER EDGES OF ADJACENT FOOTINGS SHALL NOT EXCEED 45 DEGREES WITH THE HORIZONTAL, UNLESS INDICATED OTHERWISE IN THE GEOTECHNICAL REPORT.

- h. PROVIDE CONTINUOUS WATERSTOPS IN ALL HORIZONTAL AND VERTICAL CONSTRUCTION JOINTS IN BELOW GRADE PIT WALLS AND IN CONCRETE WALLS RETAINING SOIL ON ONE SIDE AND WITH OCCUPIED SPACE ON THE OTHER.

- i. SHEETING, SHORING AND Dewatering IS THE RESPONSIBILITY OF THE CONTRACTOR; SHEETING AND SHORING SHALL BE DESIGNED BY THE CONTRACTOR'S PROFESSIONAL ENGINEER WHO SHALL BE REGISTERED IN THE PROJECT'S JURISDICTION; ALL SUBMITTALS SHALL BE SIGNED AND SEALED BY THAT ENGINEER.

- j. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PROTECT ALL EXISTING STRUCTURES, CURBS, STREETS, ETC. FROM DAMAGE BY CONSTRUCTION EQUIPMENT. THE CONTRACTOR SHALL NOT DISPOSE OF ANY LIQUIDS, SLURRY, SPOILS OR CHEMICALS ON THE SITE EXCEPT AS DIRECTED BY THE OWNER'S REPRESENTATIVE AND APPROVED BY THE DEPARTMENT OF ENVIRONMENTAL RESOURCES OR OTHER AGENCIES HAVING JURISDICTION.

- k. NEW FOOTING BEARING ELEVATIONS SHALL MATCH ADJACENT EXISTING FOOTING BEARING ELEVATIONS WHERE APPLICABLE UNLESS INDICATED OTHERWISE ON PLANS.

2. DRILLED PIERS (CAISSONS):

- a. ACTUAL BEARING CAPACITY SHALL BE VERIFIED BY AN EXPERIENCED, QUALIFIED GEOTECHNICAL ENGINEER BEFORE PLACING CONCRETE. SEE SPECIFICATIONS FOR DETAILS.

- b. PIERS SHALL BE DRILLED IN PLACE AND FILLED WITH CONCRETE. THE BED AND SHAFT SHALL BE LEVELED AND CLEARED OF ALL LOOSE MATERIAL BEFORE THE CONCRETE IS PLACED. THE SHAFT SHALL BE KEPT FREE OF WATER.

3. STRUCTURAL FILL:

- a. REFER TO SPECIFICATIONS AND GEOTECHNICAL REPORT REQUIREMENTS FOR COMPACTED STRUCTURAL FILL. REQUIREMENTS CONTAINED IN THE GEOTECHNICAL REPORT ARE PART OF THIS WORK. INSPECTION OF THE PLACEMENT OF COMPACTED STRUCTURAL FILL SHALL BE BY AN EXPERIENCED, QUALIFIED GEOTECHNICAL ENGINEER.

H. CONCRETE:

1. CAST-IN-PLACE CONCRETE:

- a. REINFORCING STEEL PLACING DRAWINGS SHALL BE PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF ACI 315, "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT". THE PLACING DRAWINGS SHALL SHOW ALL INFORMATION NECESSARY TO FABRICATE AND PLACE THE REINFORCING STEEL.

THE SPACING OF ALL REINFORCING STEEL MUST BE COMPUTED BY THE REINFORCING STEEL DETAILER AND MUST BE INDICATED ON THE PLACING DRAWINGS. EXTENT ARROWS MUST BE USED TO CLEARLY INDICATE THE LOCATIONS WHERE GROUPS OF REINFORCING BARS ARE TO BE INSTALLED.

A LIST OF ALL APPLICABLE REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE INDICATED ON ALL REINFORCING STEEL PLACING DRAWINGS. PLACING DRAWINGS THAT DO NOT SHOW SUFFICIENT INFORMATION NEEDED TO PLACE THE REINFORCING STEEL WILL BE REJECTED.

- b. REINFORCING STEEL SHALL BE DETAILED AND INSTALLED TO HAVE THE FOLLOWING CONCRETE CLEAR COVER DIMENSIONS, UNLESS NOTED OTHERWISE:

REINF. STEEL IN CONCRETE CAST AGAINST SOIL	3"
REINF. STEEL IN CONCRETE EXPOSED TO SOIL OR WEATHER #5 BARS AND SMALLER	1 1/2" 2"
#6 BARS AND LARGER SLAB AND WALL REINF. NOT EXPOSED TO SOIL OR WEATHER	3/4"
TOP REINF. IN PARKING LEVEL SLABS	1 1/2"
BOTTOM REINF. IN PARKING LEVEL SLABS	1"

- c. SPLICES IN REINFORCING STEEL SHALL BE MADE ONLY AT THOSE LOCATIONS WHERE SPLICES ARE SHOWN ON THE STRUCTURAL DRAWINGS AND AT THOSE LOCATIONS WHERE SPLICES HAVE BEEN DETAILED ON THE REINFORCING STEEL PLACING DRAWINGS THAT HAVE BEEN REVIEWED AND APPROVED BY THE STRUCTURAL ENGINEER. ALL SPLICES SHALL BE CLASS "B" TENSION LAP SPLICES (SEE TABLES 1 & 2 BELOW), EXCEPT WHERE INDICATED OTHERWISE ON THE STRUCTURAL DRAWINGS. MECHANICAL SPLICE COUPLERS CAPABLE OF DEVELOPING 125% OF THE YIELD STRENGTH OF THE REINFORCING STEEL MAY BE USED INSTEAD OF TENSION LAP SPLICES AT THE CONTRACTOR'S OPTION AT ANY LOCATION. COMPRESSION LAP SPLICES PER TABLE 3 MAY BE USED ONLY AT THOSE LOCATIONS WHERE SUCH SPLICES ARE SPECIFICALLY INDICATED. STAGGER SPLICES WHERE REQUIRED TO PROVIDE 1 1/2" CLEAR SPACING BETWEEN REINFORCING STEEL AT SPLICE LOCATIONS.

TABLE 1 - CLASS "B" TENSION LAP SPICE LENGTHS (SEE NOTES BELOW)

REINF. STEEL Fy	BAR SIZE	BAR LOCATION	CONCRETE STRENGTH						
			3 ksi	4 ksi	5 ksi	6 ksi	7 ksi	8 ksi	9 ksi
60 KSI	#3	TOP BARS	2'-4"	2'-0"	1'-9"	1'-8"	1'-6"	1'-5"	1'-4"
		OTHER BARS	1'-9"	1'-6"	1'-5"	1'-4"	1'-4"	1'-4"	1'-4"
	#4	TOP BARS	3'-1"	2'-8"	2'-5"	2'-2"	2'-0"	1'-11"	1'-9"
		OTHER BARS	2'-4"	2'-1"	1'-10"	1'-8"	1'-7"	1'-5"	1'-4"
	#5	TOP BARS	3'-10"	3'-4"	3'-0"	2'-9"	2'-6"	2'-4"	2'-3"
		OTHER BARS	3'-0"	2'-7"	2'-4"	2'-1"	1'-11"	1'-10"	1'-9"
	#6	TOP BARS	4'-8"	4'-0"	3'-7"	3'-3"	3'-0"	2'-10"	2'-8"
		OTHER BARS	3'-7"	3'-1"	2'-9"	2'-6"	2'-4"	2'-2"	2'-1"
	#7	TOP BARS	6'-9"	5'-10"	5'-3"	4'-9"	4'-5"	4'-2"	3'-11"
		OTHER BARS	5'-2"	4'-6"	4'-0"	3'-8"	3'-5"	3'-2"	3'-0"
	#8	TOP BARS	7'-9"	6'-8"	6'-0"	5'-5"	5'-1"	4'-9"	4'-5"
		OTHER BARS	5'-11"	5'-2"	4'-7"	4'-2"	3'-11"	3'-8"	3'-5"
	#9	TOP BARS	8'-8"	7'-6"	6'-9"	6'-2"	5'-8"	5'-4"	5'-0"
		OTHER BARS	6'-8"	5'-10"	5'-2"	4'-9"	4'-5"	4'-1"	3'-10"
	#10	TOP BARS	9'-10"	8'-6"	7'-7"	6'-11"	6'-5"	6'-0"	5'-8"
		OTHER BARS	7'-6"	6'-6"	5'-10"	5'-4"	4'-11"	4'-7"	4'-4"



SCALE: 1/8" = 1'-0"

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SCALE: 1/8" = 1'-0"

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SCALE: 1/8" = 1'-0"

1 LEVEL 3 FRAMING PLAN - AREA A

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SCALE: 1/8" = 1'-0"

???

2 TH LEVEL 2

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S103A

SCALE: 1/8" = 1'-0"



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S104A

SCALE: 1/8" = 1'-0"

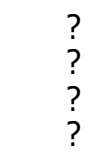
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SCALE: 1/8" = 1'-0"

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